

PLANNING COMMISSION PUBLIC HEARING

DATE OF HEARING: July 28, 2010 DECISION DEADLINE: September 21, 2010 CMPT 2010-0004 Clearwire – Riverview at Leisure World PROJECT MANAGER: Judi Birkitt DIRECTOR: Julie Pastor, AICP ELECTION DISTRICT: Broad Run

EXECUTIVE SUMMARY

Clearwire Wireless LLC of Columbia, Maryland, has submitted an application for Commission approval to permit installation of 3 telecommunications panel antennas, 5 microwave antennas, 1 GPS antenna, and 1 associated equipment cabinet on the roof of an existing 12-story building in the PD-AAAR (Planned Development–Active Adult/Age Restricted) zoning district. This application is subject to the Revised 1993 Zoning Ordinance and requires a Commission Permit in accordance with Section 6-1100. The existing 12-story building is known as Building 6, contains approximately 400 condominium units, and is located on two adjoining parcels together containing approximately 1.07 acres, within the development known as Leisure World, located on the west side of the intersection of Cypress Ridge Terrace and Magnolia Grove Square, northeastward of Lansdowne Boulevard (Route 2400), and north of Woodridge Parkway (Route 2403), at 19355 Cypress Ridge Terrace in Lansdowne. The area is governed by the policies of the Revised General Plan (Suburban Policy Area (Ashburn Community)) and the Strategic Land Use Plan for Telecommunications Facilities, which designate this area for Keynote Employment uses.

RECOMMENDATION

Staff recommends approval based on the Findings in this Staff Report.

SUGGESTED MOTIONS

1. I move that the Planning Commission approve CMPT 2010-0004, Clearwire – Riverview at Leisure World, subject to the plat dated April 29, 2010, revised through June 22, 2010, prepared by EBI Consulting, and based on the Findings contained in the July 28, 2010 Staff Report, and forward the application to the Board of Supervisors for ratification.

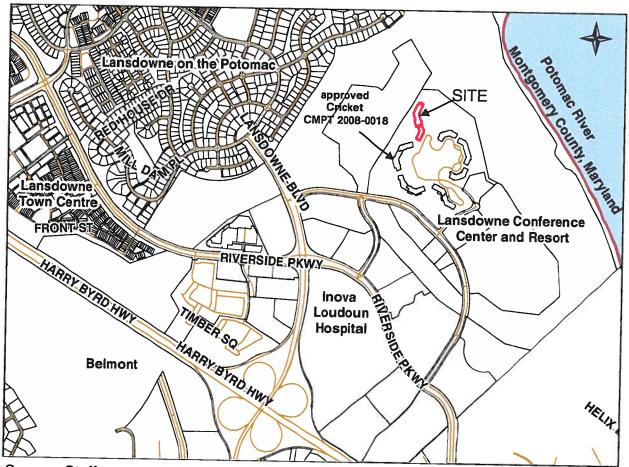
OR

2. I move that the Planning Commission forward CMPT 2010-0004, Clearwire – Riverview at Leisure World to a work session for further discussion.

OR

3. I move that the Planning Commission deny CMPT 2010-0004, Clearwire – Riverview at Leisure World, based on the following findings:

VICINITY MAP



Source: Staff prepared map/County Land Use Records.

Directions: From Leesburg, take Route 7 east to Lansdowne Boulevard. Proceed north on Lansdowne Boulevard to Woodridge Parkway. Turn right onto Woodridge Parkway and proceed to Slatestone Court. Turn left onto Slatestone Court and proceed to Leisure World Terrace. Turn left onto Leisure World Terrace and proceed to the guard house. The proposed antennas would be located on the penthouse of the high-rise building located at 19355 Cypress Ridge Terrace.

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Subject building at 19355 Cypress Ridge Terrace in Leisure World

I. APPLICATION INFORMATION

APPLICANT/

ClearWire LLC - Clearwire

REPRESENTATIVE:

Heidi L. Carrero, Network Deployment PM

15201 Diamondback Drive, Suite 200

Rockville, Maryland 20850

(240) 243-5185

heidi.carrero@clearwire.com

PROPOSAL:

A Commission Permit to allow 1 GPS antennae, 3 panel antennas, 5 microwave antennas, and 1 equipment shelter on the rooftop of an existing building. Application accepted on May 21, 2010

LOCATION:

19355 Cypress Ridge Terrace, Building 6, Leisure

World at Lansdowne

TAX MAP/PARCEL:

Tax Map Numbers /62//154A/101/ through /62//154A//57G

PIN #s 082-40-2712-001 through 082-40-2712-215

Tax Map Numbers /62//154B/102/ through /62//154B/132G

PIN #s 082-40-3076-002 through 082-40-3076-183

ZONING:

PD-AAAR (Planned Development - Active Adult Age

Restricted)

SITE AREA:

1.07 acres

SURROUNDING LAND USES/ZONING:

NORTH SOUTH EAST PD-AAAR PD-AAAR

PD-AAAR

Residential (Leisure World)
Residential (Leisure World)

WEST

PD-AAAR and PD-OP

Residential (Leisure World) Residential (Leisure World)

II. **SUMMARY OF DISCUSSION**

TOPIC/ISSUE AREA	ISSUES EXAMINED AND STATUS
Comprehensive Plan	 Consistency with <u>Revised General Plan</u> (RGP) land use policies. The use is consistent. Status: No issues. Consistency with <u>Telecom Plan</u> location policies. Co-locating on an existing tall building is the preferred location. Status: No issues. Consistency with <u>Telecom Plan</u> visual impact policies. Status: No issues. Remove antennas and equipment within 90 days of cessation of the use. Status: No issues.
Zoning	 A special exception is not required as antennas are a permitted use in PD-AAAR. A commission permit is required for a public utility. A 2nd commission permit is needed because the building is on a different parcel than the other Leisure World building with approved rooftop antennas. Conform to the additional performance standards for antennas in Section 5-618(A) of the Revised 1993 Zoning Ordinance. Status: No issues.
Transportation	Consistency with the Revised Countywide Transportation Plan. Use will generate 1-2 trips/month. Status: No issues.
Utilities	 Necessary existing utilities are in place. Facility is unmanned, requiring no potable water or sanitary services. Status: No issues.
Proffers/ Conditions	 There are no proffers or conditions of approval associated with a Commission Permit. The approved proffers and Concept Development Plan remain in effect for Lansdowne.

APPLICABLE POLICY OR ORDINANCE SECTION	
Revised General Plan	
Chapter 7: Planned Land Use Map.	
Strategic Land Use Plan for Telecommunications Facilities	
Location Policy 1.	

Countywide Visual Impacts Policy 3.

Tower and Monopole Design Policy 2.

Safety and Health Policy C-2.

Revised 1993 Zoning Ordinance

Section 4-1304(F).

Section 5-618(A). Telecommunications Use and/or Structure (Performance Standards)

Section 6-1103(A). Conformance with Comprehensive Plan.

III. FINDINGS

- 1. The general location, character and extent of the proposal are in substantial accord with the Comprehensive Plan.
- 2. The application is in conformance with the general location and policies outlined in the <u>Revised General Plan</u> and <u>Strategic Land Use Plan for Telecommunications Facilities</u>, which identify co-location on existing tall structures as a preferable location for telecommunication antennas.
- 3. The design and visual impact of the proposed installation of telecommunication antennas and associated equipment on the roof of the existing building are in conformance with the design guidelines for telecommunication facilities Strategic Land Use Plan for Telecommunications Facilities.
- 4. The proposed project will not impact the flood plain or any other elements of the Green Infrastructure as outlined in the <u>Revised General Plan</u>.
- 5. The proposed project is consistent with the <u>Revised Countywide Transportation Plan</u> and, with one to two vehicle trips generated per month, will not directly impact area roads and the surrounding transportation network.
- 6. The proposal conforms to the additional performance standards of Section 5-618(A) of the Revised 1993 Zoning Ordinance.

IV. PROJECT REVIEW

A. CONTEXT

Clear Wireless LLC ("Clearwire") is a telecommunication provider that is proposing to install the following telecommunications equipment on the roof of the Riverview at Leisure World Condominium building in Lansdowne:

- 1 GPS Antenna (5" Height x 3.2" Diameter)
- 5 Microwave Antennas (26.1" Height x 13.2"



Leisure World (7 residential buildings). Source: Bing.

Depth)

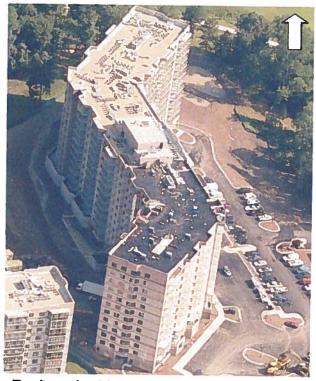
- 3 Panel Antennas (42.1" Height x 11.8" Width x 4.5" Depth)
- 1 Equipment Cabinet (4'6" Height x 2'1" Width)

The proposed equipment and structures would occupy 7.1% of the roof area (See Sheet A-1). No land disturbance is proposed.

The subject building is one of seven buildings in the Leisure World active adult residential community. The 12-story building is an irregular shaped high-rise that is approximately 138 feet in height with a series of penthouses and flat roofs with low parapet walls.

In accordance with Section 6-1100 of the Revised 1993 Zoning Ordinance, Commission Permit required determine if the general location. character and extent of the proposal is in substantial accord with the Comprehensive Plan. There is no related Special Exception request since telecommunication antennas are permitted by-right on existing structures forty (40) feet in height or greater, subject to performance standards.

The site is surrounded by other multifamily residential units within Leisure World and the Lansdowne Conference Center and



Rooftop of subject building. Source: Bing.

Resort. On July 7, 2009, the Board ratified a CMPT for Cricket Wireless to locate 6 panel antennas and 2 GPS antennas on the rooftop of an adjacent Leisure World building (see the vicinity map in this report). An additional CMPT is required for Clearwire, since the buildings are located on separate parcels.

B. SUMMARY OF OUTSTANDING ISSUES

All of the issues that Staff identified in the initial referral comments have been addressed on the revised plat. There are no outstanding Staff issues.

C. OVERALL ANALYSIS

COMPREHENSIVE PLAN

The site is located in the Ashburn Community within the Suburban Policy Area and is governed under the policies of the <u>Revised General Plan</u> (RGP). The RGP designates this area for Keynote Employment development. The proposed antennas are specifically governed under the policies of the <u>Strategic Land Use Plan for Telecommunications Facilities</u> (Telecommunications Plan).

Location

The proposed location on the roof of an existing tall building is consistent with the Telecommunication Plan's location policies. To minimize the need for new facilities, telecommunication antennas should be located on existing buildings, towers, monopoles, water tanks, overhead utility transmission lines, and other tall structures whenever possible. The proposed site is considered a preferred location since it uses the height of the existing building to provide improved wireless coverage to the area without requiring the construction of a new tower or monopole.

The applicant has provided propagation maps that compare the existing Clearwire coverage with the coverage after installation of the proposed antennas. The maps indicate that currently there is "poor" to "no" coverage in the Lansdowne area, and that "good" coverage would result after installation of the proposed antennas at the subject location. Refer to Attachment 3.

Design Guidelines and Visual Impact

According to the applicant's Commission Permit plat, the proposed antennas will be attached to the exterior walls of the building, the penthouse walls, and on a metal support anchored on the roof. The applicant has also submitted a visual analysis report, which includes photo-simulations of the buildings after installation of the proposed antenna. Refer to Attachment 4. According to the report, there will be some visibility of the antennas from Lansdowne Resort and the surrounding residential buildings.

The Telecommunication Plan calls for design standards to mitigate the visual impacts of telecommunications facilities so as to "blend with the natural and built environment of the surrounding area." Specific attention should be given to setting, color, lighting, topography, materials, and architecture. To blend with the environment, the plat contains a note that antennas will be painted to match the building wall, and any portions extending beyond the building will be painted grey to match the sky (Sheet A-4). The one proposed equipment structure will be located behind the existing parapet wall, out of public view.

The proposal requires no land disturbance or impacts upon the Green Infrastructure, as outlined in the <u>Revised General Plan</u>. Further, the applicant does not propose signage or lighting. Staff finds the overall design and visual impact of the proposed telecommunication antennas and associated equipment on the roof of the existing building to be in conformance with the design guidelines for telecommunication facilities.

Safety and Health

There are no outstanding safety and health policy issues. Consistent with the Telecommunication Plan's Safety and Health Policies, the Commission Permit plat contains notes stating that the applicant will remove all unused equipment from the site within 90 days of cessation of the use and will restore the site as closely as possible to its original condition (see sheet C-1, note 13 and sheet A-2).

ZONING

The subject property is zoned Planned Development-Active Adult Age Restricted (PD-AAAR) and is regulated by the <u>Revised 1993 Loudoun County Zoning Ordinance (ZO)</u>. The Lansdowne property, including the Leisure World component is subject to the proffers associated with ZMAP-1994-0001 and ZCPA-1994-0002.

The PD-AAAR zoning district permits antennas and associated equipment shelters on the roofs of buildings that are 40 feet or greater in height, subject to performance standards for telecommunications antennas that regulate antenna and equipment shelter dimensions, signage, and lighting (Section 5-618). The Commission Permit request meets all of the performance standards. There are no outstanding Staff issues.

VI. ATTACHMENTS (Attachments are available electronically on the County website or may be view at the Planning Department Front Counter or in Building & Development.)	PAGE NUMBER
1. Review Agency Comments	
a. Planning Department, Community Planning (06-15-10)	A-1
b. Building and Development, Zoning Administration (06-07-10)	A-5
2. Applicant's Statement of Justification (04-29-10)	A-7
3. Applicant's Propagation Maps (04-29-10)	A-9
4. Applicant's Visual Analysis (February 2, 2010)	A-11
5. Commission Permit Plat (June 30, 2010)	Attached

County of Loudoun

Department of Planning

MEMORANDUM

DATE:

June 15, 2010

TO:

Judi Birkitt, Project Manager

Land Use Review

FROM:

Pat Giglio, Planner

Community Planning

SUBJECT: CMPT 2010-0004, Riverview at Leisure World

BACKGROUND

The applicant, Clearwire Wireless LLC, is requesting a Commission Permit to locate three (3) telecommunication panel antennas, five (5) microwave antennas and associated equipment cabinets on the roof of the Riverview Condominiums in Leisure World, located at 19355 Cypress Ridge Terrace in Lansdowne. The 12-story building is an irregular shaped high-rise which is approximately 138 feet in height and terminates in a series of penthouses and flat roofs with low parapet walls. The proposed telecommunication antennas will be attached to the exterior walls of the building, the penthouse walls and on a metal sled (prefabricated supports) which will be anchored on the roof. The antennas will be painted to match the building and/or light grey to match the sky. The antennas will be visible from the surrounding residential development and adjoining Lansdowne Resort. The associated equipment cabinets will be located on a platform behind the existing parapet wall and will be screened from view.

The subject site is zoned Planned Development-Active Adult/Age Restricted (PD-AAAR) and governed under the provisions of the Revised 1993 Zoning Ordinance. In accordance with the Revised 1993 Zoning Ordinance, a Commission Permit is required when a public utility or public service facility is constructed to determine if the general location, character, and extent of the proposed use is in substantial accord with the Comprehensive Plan. The installation of the proposed antennas and associated equipment on the existing building requires no land disturbance or impact on any aspects of the Green Infrastructure as outlined in the Revised General Plan.

COMPREHENSIVE PLAN CONFORMANCE

The site is located in the Ashburn Community within the Suburban Policy Area and is governed under the policies of the Revised General Plan (the Plan). The Revised General Plan designates this area for Keynote Employment uses (Revised General Plan, Chapter 7, Planned Land Use Map). The proposed use is specifically governed under the policies of the Strategic Land Use Plan for Telecommunications Facilities (Telecommunications Plan).

ANALYSIS A. LAND USE Location Policies

To minimize the need for new facilities, the Telecommunications Plan directs that new commercial telecommunication antennas be located on "existing buildings, towers, monopoles, water tanks, overhead utility transmission line structures and other tall structures wherever possible" (*Telecommunications Plan, Countywide Location Policies, Policy 1*). The roof top location of the proposed site is considered a preferred location because it effectively uses the height of the existing building to provide wireless coverage to the area without requiring the construction of a new tower or monopole. The proposed roof top location is consistent with Plan policies and countywide goals to minimize the need for construction of new towers and monopoles (*Telecommunications Plan, Countywide Location Policies, Policy 1*).

Staff finds the proposed site and location of the building-mounted antennas on the existing parapet wall is an appropriate and preferred location as identified by the Plan.

Design Guidelines and Visual Impact

The Telecommunications Plan calls for design standards to mitigate the visual impacts of commercial public telecommunications facilities so as to "blend with the natural and built environment of the surrounding area." The Plan directs that specific attention be paid to issues pertaining to the setting, color, lighting, topography, materials, and architecture. Antennas and other telecommunication devices should be neutral in color to blend with the background, unless specifically required by the FAA to be painted or lighted otherwise (Telecommunications Plan, Tower and Monopole Design, Policy 2). Accessory structures and equipment buildings should also blend with the surrounding environment through the use of appropriate color, texture of materials, scale, landscaping, and visual screening (Telecommunications Plan, Countywide Visual Impacts, Policy 3).

The application includes drawings depicting the proposed location of the telecommunication antennas and associated equipment cabinets on the roof of the existing building. The proposed telecommunication antennas will be attached to the exterior walls of the building, the penthouse walls and on a metal sled (prefabricated supports) which will be anchored on the roof. The associated

telecommunication cabinets and equipment will be located on a platform behind the parapet wall and screened from views. The antennas will be painted to match the building and/or light grey to match the sky. It is anticipated that the proposed antennas will be visible from different vantage points around the building but based on their size, coloration, and location on the upper portions of the building views should be negligible.

Staff finds the overall design and visual impact of the proposed installation of telecommunication antennas and associated equipment on the roof of the existing building to be in conformance with the design guidelines for telecommunication facilities.

B. SAFETY AND HEALTH POLICIES

Plan policies state "an applicant or its successors shall remove all unused structures and facilities from a commercial public telecommunications site, including towers and monopolies, within 90 days of cessation of commercial public telecommunications use or the expiration of the lease, whichever occurs first, and the site should be restored as closely as possible to its original condition" (*Telecommunications Plan, Safety and Health Policies, Policy 2*).

Staff acknowledges the applicants commitment to remove the antennas and equipment following cessation of use.

RECOMMENDATIONS

Staff finds that the application is in conformance with the general location and design policies outlined in the Revised General Plan and Strategic Land Use Plan for Telecommunications Facilities which identifies co-location on existing tall structures as a preferable location for telecommunication antennas. Staff finds the design and visual impact of the proposed installation of telecommunication antennas and associated equipment on the roof of the existing building are in conformance with the design guidelines for telecommunication facilities.

Staff recommends approval of the subject Commission Permit.

cc: Julie Pastor, AICP, Director, Planning
John Merrithew, AICP, Assistant Director, Planning

COUNTY OF LOUDOUN MEMORANDUM

DEPARTMENT OF BUILDING AND DEVELOPMENT

DATE: June 7, 2010

TO: Judi Birkitt, Project Manager, Department of Planning

FROM: Theresa M. Stein, Planner, Zoning Administration

CASE NUMBER AND NAME: CMPT 2010-0004, Clearwire Antenna at Leisure World

(Riverview at Leisure World)

TAX/MAP PARCEL NUMBER: /62//154A/322/ and 62//154B/606/

MCPI: 082-40-2712 and 082-40-3076

Per the Statement of Justification (SOJ), the applicant requests approval of a commission permit to install 3 panel antenna and 5 microwave antennas on the rooftop of an existing building in Leisure World, located at 19355 Cypress Ridge Terrace, which is zoned Planned Development – Active Adult/Age Restricted (PD-AAAR) under the *Revised 1993 Loudoun County Zoning Ordinance* (Ordinance). Antenna on an existing building is permitted, per Section 4-1304(F) of the Ordinance, if it meets the standards found in Section 5-618(A). Zoning staff has reviewed the Statement of Justification and plat, dated April 29, 2010, in accordance with Section 6-1100 and Section 5-618(A), and offers the following comments:

- 1. Section 6-1103(A) states that the feature for which approval is being sought, must substantially conform to the Comprehensive Plan. Staff defers to the Planning Department for comment.
- 2. On sheet T-1 and in General Note 15 state the zoning district. Revise General Note 15; the zoning district permits antenna on existing buildings provided the standards in Section 5-618(A) are met. A special exception is not required and telecommunication antennas are not considered a "public utility" per Section 5-618 of the Ordinance.
- 3. Sheet T-1, Scope of Work, states that 3 WIMAX panel, 5 Backhaul antenna, and 1 GPS antenna are being installed, which is a total of 9. Sheet A-1 details the location of 9 antenna. However, the SOJ states that 8 antennas are proposed. Revise the documents to be consistent in the total number of antenna proposed. Revise the SOJ to state the number of equipment shelters proposed. On sheet A-1, clarify which antenna are panel and which are microwave.
- 4. Section 5-618(A)(1) permits antenna in all zoning districts on existing structures 40' in height or greater. Sheet T-1 states the "Structure Height" as 158' while sheet A-2 states the height of the building as 118' and the height of the penthouse as 138'. Reconcile the height of the existing building.

Clearwire @ Leisure World CMPT 2010-0004 June 7, 2010 Page 2 of 2

- 5. Section 5-618(A)(5) limits panel antenna to 10-feet in height and 2- feet in width and Sec 5-618(4) limits omnidirectional or whip antenna to 20-feet in height or 7-inches in diameter. Provide the dimensions of all proposed antenna on sheet A-4.
- 6. Microwave dishes may not exceed 6' in diameter per 5-618(A)(6) and may not be visible from public view. Provide the diameter of the dishes proposed and state on sheets A-1, A-2, and A-3 that they will not be visible from public view. Provide elevations to demonstrate the dishes are not visible from public view.
- 7. Be advised that a site plan revision (STPR) application and permits will be required if this application is approved.
- 8. On sheet A-1, A-2, A-3, and A-4, remove the reference to Section 5-618(B)(3)(M), as it does not apply to antenna.

STATEMENT OF JUSTIFICATION

Clearwire Proposed Rooftop Installation Riverview at Leisure World Condominium Parcel ID #s: 082-40-2712 and 082-40-3076

Commission Permit Application for Approval

1. <u>Introduction and Description of Application</u>

Clear Wireless LLC (hereinafter, the "Applicant") is a telecommunications provider and has entered into a Lease Agreement (hereinafter, the "Agreement") with the owners of Riverview at Leisure World Condominium, (hereinafter, the "Owner") for the purpose of installing three panel antennas with built-in GPS units and five microwave antennas onto a condominium rooftop. The proposed site is located at 19355 Cypress Ridge Terrace, in Loudoun County, Virginia. The Parcel ID numbers are 082-40-2712 and 082-40-3076, in Loudoun County, Virginia, and are zoned PDAAAR.

The adjacent parcels are Planned Developments and the Parcel is bordered northeasterly by 44060 Woodridge Parkway, Tax Map 62-2K, MCPI#082385871, which is zoned PDH3. The Parcel is bordered northwesterly by 44050 Woodridge Parkway, Tax Map # 62-2-1, MCPI#082494524, and is zoned PDOP. The Parcel is bordered southwesterly by Tax Map 62-3-E, MCPI#082201546, which is zoned PDOP, along with Tax Map 62-3-4A, MCPI#082202083, and is zoned PDOP. The parcel is bordered on the east side by 19390 Leisure World Boulevard, Tax Map # 62-3-3A, MCPI#055354601, and is zoned PDAAAR, and on the southeasterly side by 44211 Slatestone Court, Tax Map # 62-3-3B, MCPI#055251380, and is zoned PDOP. Lastly, the parcel is bordered on the south side by 44115 Woodridge Parkway, Tax Map # 62-3PC-102, MCPI#082205544, which is zoned PDOP.

The Applicant is filing this application in order to comply with Section 6-1100 of the 1993 Zoning Ordinance, as it applies to the CMPT.

2. Zoning Approval History

The Owner has an existing lease on an adjacent building with another commercial telecommunications provider. The CMPT, zoning and building permits were approved by the Board and the installation was completed.

3. Comprehensive Plan

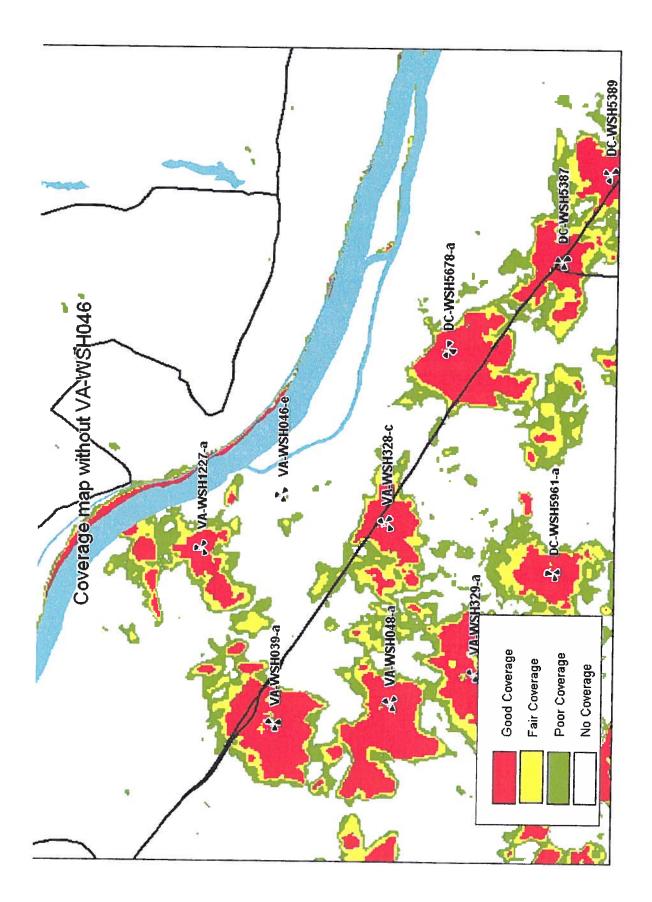
The proposed antenna installation falls within the co-location guidelines as provided for in the Loudoun County Zoning Ordinance. The Parcel is zoned for telecommunications antennas and the approval of this site is compliant with the Revised 1993 Zoning Ordinance.

- The proposed site is consistent with the Comprehensive Plan
- The proposed site will provide required safety measures to deter against hazards
- The proposed site will not emit a noise level that will negatively impact the area
- The proposed site is compatible with adjacent parcels

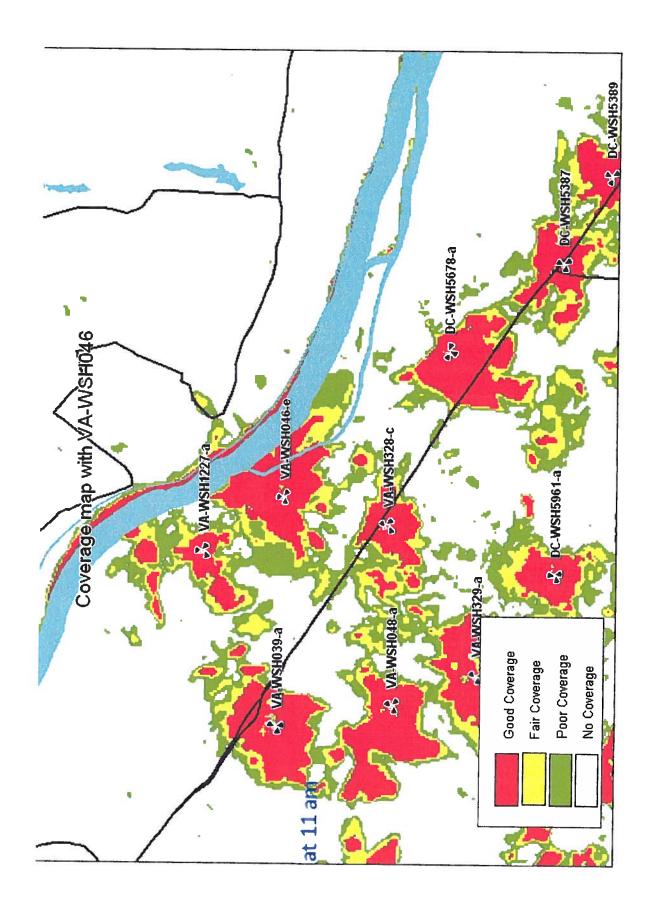
- The proposed site will not require stealthing, landscaping, or buffering
- The proposed site will not impact preserved, topographic, natural, scenic, archeological, or historic features or areas
- The proposed site will not impact wildlife, vegetation, and water or air quality
- The proposed site will not generate additional traffic

5. <u>Propagation Maps and Need for Location</u>

Attached are propagation maps showing the coverage provided by the panel antennas before and after installation. Also, this exact location is fundamental in integrating other sites into the Clearwire network.



ATTACHMENT 3



EBI Consulting Visual Analysis

Prepared For:



PROPOSED PUBLIC UTILITY WIRELESS COMMUNICATIONS FACILITY

VA-WSH046-e REV I

Provided By:

EBI Consulting

February 2, 2010



ATTACHMENT 4

PN: 61090533

Site Name: Leisure World Site Number: VA-WSH046-e 19355 Cypress Ridge Terrace Landsdowne, VA20176

Prepared For:

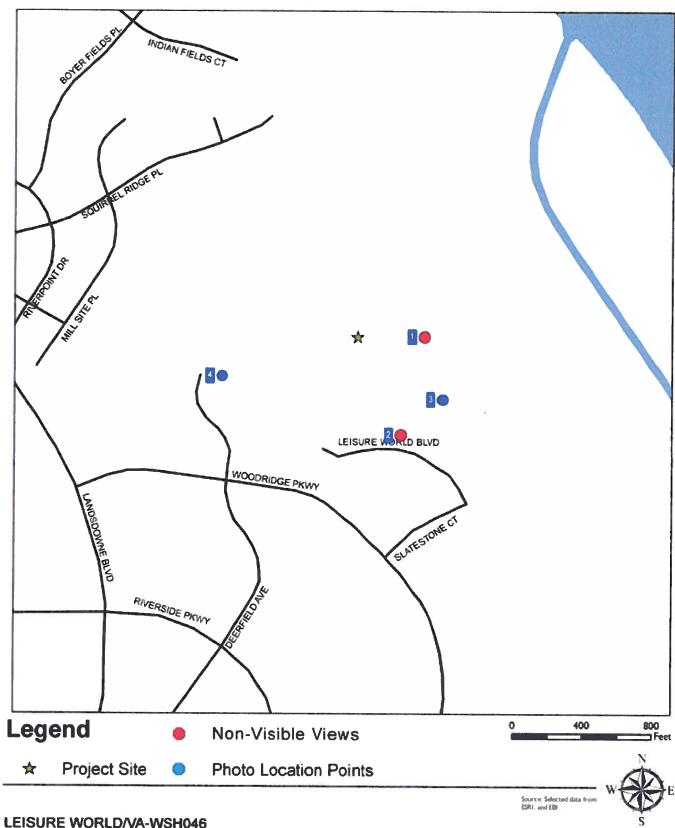
Clearwire

Provided By:
EBI Consulting
21 B Street
Burlington, MA 01803
ph. 781.273.2500
fax 781.273.3311

ISSUED 10/01/09
REV 1 02/02/10
REV 2
DRAWN BY MC
CHECKED BY RAJ

Note. These photo simulations are intended to represent modifications relative to a person observing the aesthetics of the proposed telecommunications installation. Therefore, they are inherently approximate in nature and should not be used as an exact, scaled, engineering drawing.

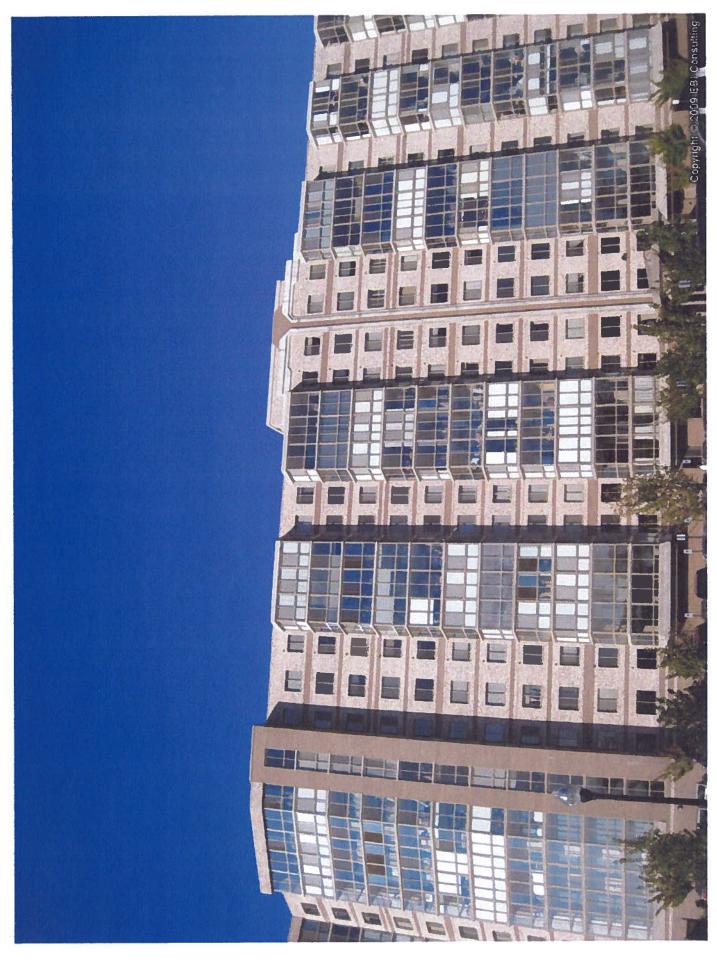
VISIBILITY MAP



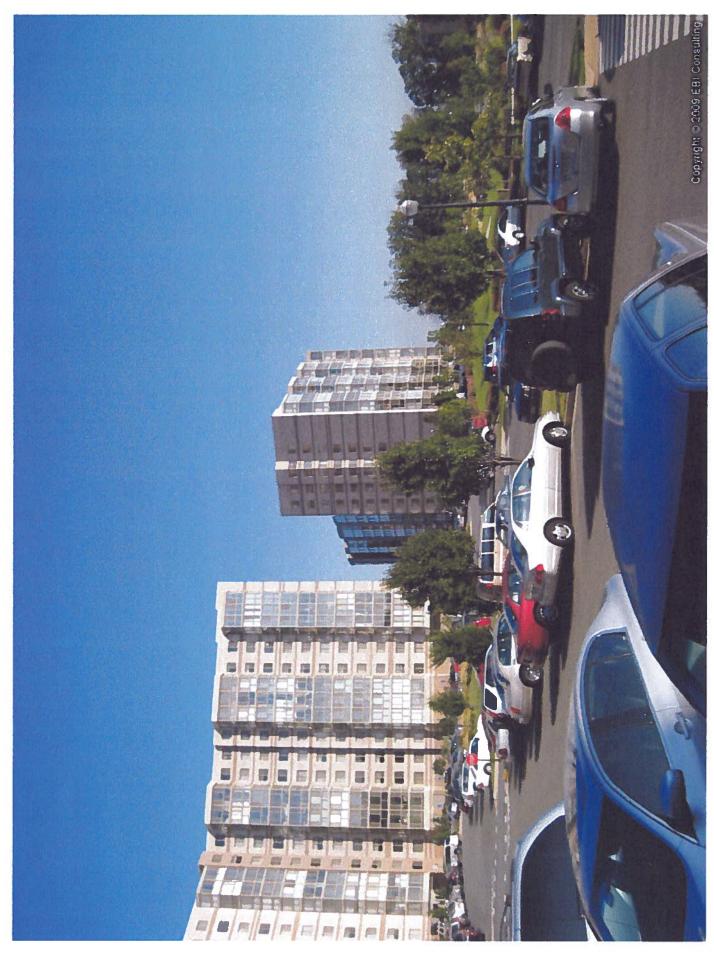
LEISURE WORLD/VA-WSH046 19355 CYPRESS RIDGE TERRACE LANDSDOWNE, VA 20716

PN: 81090526





PROPOSED ANTENNAS (NOT VISIBLE) | LOOKING WEST SUBJECT PROPERTY PARKING LOT



PROPOSED ANTENNAS (NOT VISIBLE) | LOOKING NORTH FROM SUBJECT PROPERTY PARKING LOT



EXISTING CONDITIONS | LOOKING NORTHWEST FROM SUBJECT PROPERTY PARKING LOT



PROPOSED ANTENNAS | LOOKING NORTHWEST FROM SUBJECT PROPERTY PARKING LOT



EXISTING CONDITIONS | LOOKING EAST FROM DEERFIELD AVE



PROPOSED ANTENNAS | LOOKING EAST FROM DEERFIELD AVE

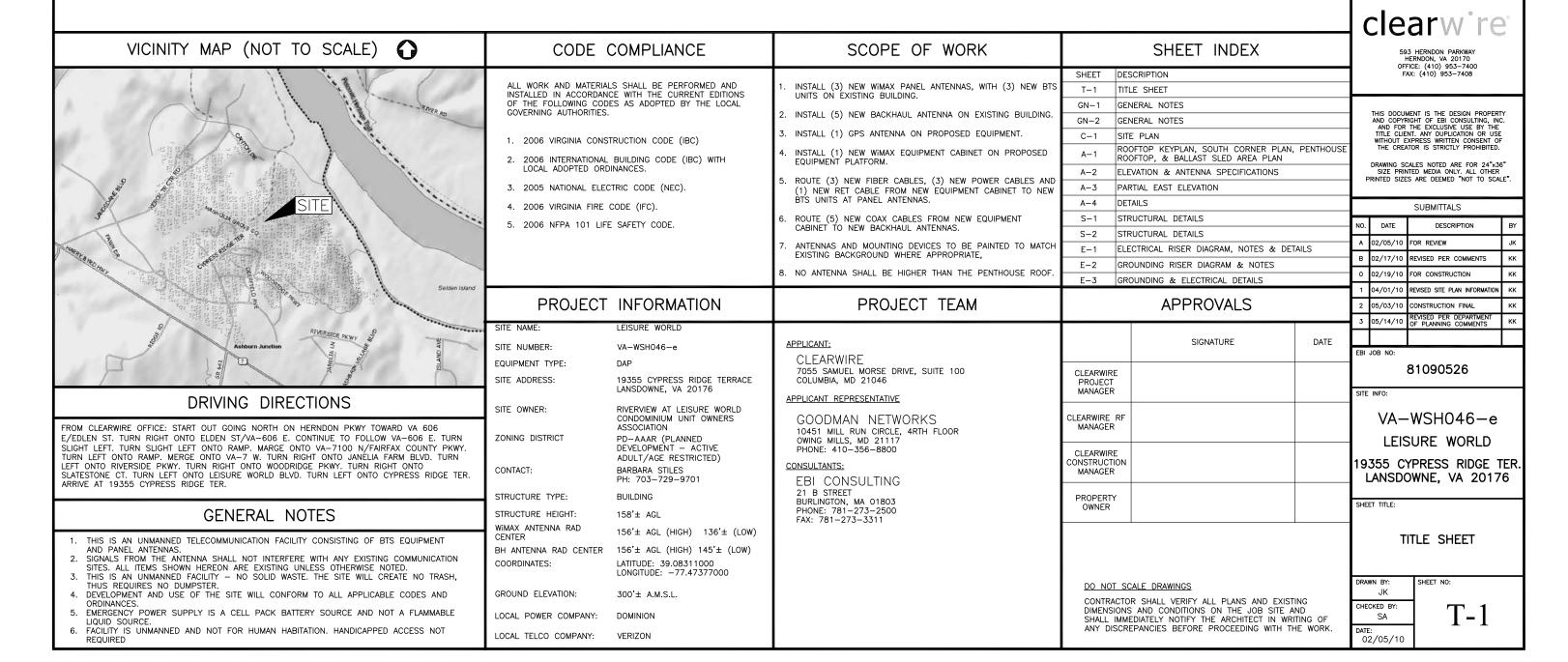
clearw're®

Burlington, MA 01803 Tel: 781.273.2500 Fax: 781.273.3311 www.ebiconsulting.com

RONALD J. JACKSON

FNGINFER STAMP/SIGNATURE

LEISURE WORLD VA-WSH046-e 19355 CYPRESS RIDGE TERRACE LANSDOWNE, VA 20176



DIVISION 01 00 00 - GENERAL REQUIREMENTS

- THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS. ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
- THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR COMMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE THE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
- 3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE CLEARWIRE'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR COMMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.
- 4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
- 5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE
- 6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDORS SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE,
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- 10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
- 12. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE ALL DIRT, DERBIES, RUBBISH AND REMOVE ALL UNNECESSARY MATERIAL.
- 13. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE STATE BUILDING CODE, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT. ALL EXISTING ACTIVE SWERF, WATER, CAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT/ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND ON NEAR UTILITIES. THE FORMATION BY CONTRACT TO SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT IS NOT LIMITED TO A) FALL PROTECTION BY CONTRIBED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION ALL EXISTING INACTIVE SEWER, WATER, CAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED OR CAPPED, OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK. SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER.
- 14. THE CONTRACTOR SHALL NOTIFY THE CLEARWIRE'S REPRESENTATIVE IN WRITING, WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL THE CONFLICT IS RESOLVED BY THE CLEARWIRE'S REPRESENTATIVE.
- 15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB
- 16. THE CONTRACTOR SHALL NOTIFY THE RF ENGINEER FOR ANTENNA AZIMUTH VERIFICATION (DURING ANTENNA INSTALLATION) PRIOR TO CONDUCTING SITE SWEEPING.

DIVISION 03 00 00 - CONCRETE

03 30 00 CAST-IN-PLACE CONCRETE

PART 1 GENERAL

WORK INCLUDES CONSTRUCTION OF CAST-IN-PLACE CONCRETE FOUNDATIONS, INCLUDING FURNISHING AND INSTALLING READY-TO-MIX CONCRETE, REINFORCING, FORMWORK, AND ACCESSORY MATERIALS AS SHOWN ON THE DRAWINGS. CAST—IN-PLACE CONCRETE INCLUDES ALL SITE CONCRETE, INCLUDING FOUNDATIONS, SLABS ON GRADE, EQUIPMENT PADS, AND GUARD POST FOUNDATIONS.

RELATED WORK

COORDINATE UNDER SLAB CONDUITS

COORDINATE WITH GROUNDING

ACI-301 - SPECIFICATIONS FOR STRUCTURAL CONCRETE BUILDING

ACI-347 - GUIDE TO FORMWORK FOR CONCRETE.

ASTM C33 - CONCRETE AGGREGATES

ASTM C94 - READY-MIXED CONCRETE

ASTM C260 - AIR-ENTTRAINING ADMIXTURES FOR CONCRETE

ASTM A309 - LIQUID MEMBRANE FORMING COMPOUNDS FOR CURING CONCRETE.

ASTM 494 - CHEMICAL ADMIXTURES FOR CONCRETE

ASTM A615 - DEFORMED STEEL BARS FOR CONCRETE REINFORCEMENT

ASTM A185 - STEEL WELDED WIRE FABRIC FOR CONCRETE REINFORCEMENT

CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER AS DIRECTED BY THE CLEARWIRE'S REPRESENTATIVE.

CONCRETE TESTS SHALL BE AS DETAILED BELOW. CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER AS THE WORK PROGRESSES. FAILURE TO DETECT ANY DEFECTIVE WORK OR MATERIAL SHALL NOT IN ANY WAY PREVENT LATER REJECTION WHEN SUCH DEFECT IS DISCOVERED NOR SHALL IT OBLIGATE THE ENGINEER FOR FINAL

A. THREE CONCRETE TEST CYLINDERS SHALL BE TAKEN OF THE TOWER PIER FOUNDATION. ONE SHALL BE TESTED @ THREE

DAYS, ONE @ 28 DAYS. THE THIRD CYLINDER SHALL BE KEPT SEPARATELY, IF REQUIRED TO BE USED IN THE FUTURE

B. ONE SLUMP TEST SHALL BE TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN. SLUMP SHALL NOT EXCEED 4" UNLESS OTHERWISE NOTED.

CONCRETE SHALL BE COMPOSED OF PORTLAND CEMENT, WATER, FINE AND COARSE AGGREGATES, AND ADMIXTURES AS SPECIFIED BELOW, ALL WELL MIXED AND BROUGHT TO PROPER CONSISTENCY, CLASS I, II, III, III, OR V.

- A. CEMENT: CEMENT SHALL BE TYPE II, GRAY COLOR, LOW-ALKALI PORTLAND CEMENT CONFORMING TO ASTM-C150.
- B. FINE AND COARSE AGGREGATES: AGGREGATES FOR USE IN CONCRETE SHALL COMPLY WITH ASTM C33.
- C. WATER: WATER FOR MIXING AND CURING CONCRETE SHALL BE FREE FROM SEWAGE, OIL, ACID, ALKALI, AND SALTS AND SHALL BE FREE FROM OBJECTIONABLE QUANTITIES OF SILT, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES.

- A. CHEMICAL ADMIXTURE: ASTM C494, TYPE A-WATER REDUCING OR TYPE D WATER REDUCING AND RETARDING.
- 2.03 CURING COMPOUND: ASTM C309, TYPE 1, CLASS B: TRANSLUCENT.

- A. NON-SHRINK GROUT: PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS; CAPABLE OF DEVELOPING MINIMUM COMPRESSIVE STRENGTH OF 8,000 PSI IN 28 DAYS.
- B. JOINT FILLER: BITUMINOUS TYPE ASTM D1751 OR NON-BITUMINOUS TYPE D1752.
- C. ANCHOR BOLTS: ASTM A615 GR.75 UNPRIMED

- A. CONCRETE SHALL BE PROPORTIONED PER REQUIREMENTS OF ACI 301 & THE CLEARWIRE'S CONSTRUCTION SPECIFICATIONS FOR DESIGN, STRENGTH & WORKABILITY. CONCRETE SHALL BE DELIVERED WITHIN 45 MINUTES OF ADDITION OF WATER TO MIX.
- B. THE FOLLOWING STRENGTHS SHALL BE USED:
 - 1. FENCE POST FOUNDATIONS DESIGN COMPRESSIVE STRENGTH AT 28 DAYS OF 3,000 PSI.
- 2. EQUIPMENT FOUNDATION DESIGN COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS UNLESS OTHERWISE NOTED

(CONTRACTOR FURNISH 4,000 PSI CONCRETE)

3. CONCRETE STRENGTH FOR MONOPOLE OR TOWER FOUNDATION SHALL BE 1,000 PSI MORE THAN THE MANUFACTURER'S RECOMMENDATIONS, 4,000 PSI MINIMUM.

- C. USE ACCELERATING ADMIXTURES IN COLD WEATHER AND SET RETARDING ADMIXTURES IN HOT WEATHER ONLY WHEN APPROVED BY THE ENGINEER.
- D. TOTAL AIR CONTENT SHALL BE 5 PERCENT PLUS OR MINUS 1 PERCENT

A. THE CONTRACTOR SHALL VERIFY ANCHORS, SEATS, PENETRATIONS, PLATES, REINFORCEMENT, AND OTHER ITEMS TO BE CAST INTO CONCRETE ARE ACCURATELY PLACED. HELD SECURELY, AND SHALL NOT CAUSE HARDSHIP IN PLACING CONCRETE.

THE CONTRACTOR SHALL PREPARE PREVIOUSLY PLACED CONCRETE BY CLEANING WITH A STEEL BRUSH AND APPLYING A BONDING AGENT. APPLY THE BONDING AGENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

CONCRETE SHALL NOT BE PLACED UNTIL ALL FORM WORK, EMBEDDED PARTS, STEEL REINFORCEMENT, FOUNDATION SURFACES, AND JOINTS INVOLVED IN THE PLACING HAVE BEEN APPROVED, AND UNTIL FACILITIES ACCEPTABLE TO THE CLEARWIRE'S REPRESENTATIVE HAVE BEEN PROVIDED AND MADE READY FOR ACCOMPLISHMENT OF THE WORK AS SPECIFIED. CONCRETE MAY NOT BE ORDERED FOR PLACEMENT UNTIL ALL ITEMS HAVE BEEN APPROVED AND THE OWNER HAS PERFORMED A FINAL INSPECTION AND GIVEN APPROVAL TO START PLACEMENT IN WRITING.

- B. UNLESS SPECIFIED TO BE BEVELED, EXPOSED EDGES OF FLOATED OR TROWELED SURFACES SHALL BE EDGED WITH A TOOL HAVING A 1/4 INCH CORNER RADIUS.
- C. PLACEMENT OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301.
- D. THE CONTRACTOR SHALL ENSURE THAT REINFORCEMENT INSERTS, EMBEDDED PARTS, FORMED JOINTS AND VAPOR BARRIERS ARE NOT DISTURBED DURING CONCRETE PLACEMENT.
- E. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON

CONCRETE CAST AGAINST EARTH - 3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:
#5 AND LARGER - 2 IN.

#5 AND LARGER - 2 IN. #5 AND SMALLER & WWF - 1 1/2 IN. CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST GROUND: SLAB ON WALL - 3/4 IN. BEAMS AND COLUMNS - 1 1/2 IN.

3.04 SURFACE FINISHES

- A. SURFACES AGAINST WHICH BACK FILL OR CONCRETE SHALL BE PLACED REQUIRE NO TREATMENT EXCEPT REPAIR OF DEFECTIVE AREAS.
- B. SURFACES THAT WILL BE PERMANENTLY EXPOSED SHALL PRESENT A UNIFORM FINISH PROVIDED BY THE REMOVAL OF FINS AND THE FILLING OF HOLES AND OTHER IRREGULARITIES WITH DRY PACK GROUT, OR BY SACKING WITH UTILITY OR ORDINARY GROUT.
- C. SURFACES THAT WOULD NORMALLY BE LEVEL AND WHICH WILL BE PERMANENTLY EXPOSED TO THE WEATHER SHALL BE SLOPED FOR DRAINAGE. UNLESS ENGINEER'S DESIGN DRAWING SPECIFIES A HORIZONTAL SUFFACE OR SHOWS THE SLOP REQUIRED. THE TOPS OF NARROW SURFACES, SUCH AS STAIR TREADS, WALLS, CURBS AND PARAPETS SHALL BE SLOPED APPROXIMATELY 3/8" PER FT OF WIDTH. BROADER SURFACES SUCH AS WALKS, ROADS, PARKING AREAS AND PLATFORMS SHALL BE SLOPED APPROXIMATELY 1/4" /FT.
- D. SURFACES THAT WILL BE COVERED BY BACKFILL OR CONCRETE SHALL BE SMOOTH SCREEDED.
- E EXPOSED SLAB SURFACES SHALL BE CONSOLIDATED SCREEDED FLOATED AND "STEEL TROWELED." HAND OR EAPOSED SLAB SURFACES SHALL BE CONSCILLABLE), SCREEDEL, FLOWIELD, AND SIELE IRVWELLED, MANU OF POWER-DRIVE EQUIPMENT MAY BE USED FOR FLOATINGS WHICH SHALL BE STARTED AS SOON AS THE SCREENED SURFACE HAS ATTAINED A STIFTNESS TO PERMIT FINISHING OPERATIONS. ALL EDGES MUST HAVE A 3/4" CHAMFER. CONCRETE EXPANSION ANCHORS AND EPOXY ANCHORS SHALL BE INSTALLED IN ACCORDAGE WITH THE MANUFACTURER'S REQUIREMENTS. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. MANUFACTURER'S MINIMUM CONCRETE EDGE DISTANCE SHALL BE MAINTAINED DURING INSTALLATION.

A. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON REMOVAL OF THE FORMS TO OBSERVE CONCRETE SURFACE CONDITIONS. IMPERFECTIONS SHALL BE PATCHED ACCORDING TO THE ENGINEER'S DIRECTION.

THE CONTRACTOR SHALL MODIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LEVELS AND LINES, DETAILS, AND ELEVATIONS AS SPECIFIED IN ACI 301.

- A. IMMEDIATELY AFTER PLACEMENT, THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM PREMATURE DRYING, EXCESSIVE HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY. FINISHED WORK SHALL BE PROTECTED.
- CONCRETE SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR PERIODS NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.
- 17. ALL CONCRETE SHALL BE WATER CURED PER ACCEPTABLE PRA

DIVISION 05 00 00 - METALS

05 10 00 STRUCTURAL METAL FORMING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. THE WORK CONSISTS OF THE FABRICATION AND INSTALLATION OF ALL MATERIALS TO BE FURNISHED, AND WITHOUT LIMITING THE GENERALITY THEREOF, INCLUDES ALL EQUIPMENT, LABOR AND SERVICES REQUIRED FOR ALL STRUCTURAL STEEL WORK, INCLUDING ALL TENDED INCIDENT AS SHOWN ON THE DRAWINGS, INCLUDING.
- STEEL FRAMING INCLUDING BEAMS, ANGLES, CHANNELS AND PLATES.
- 2. WELDING AND BOLTING OF ATTACHMENTS

- A. THE WORK SHALL CONFORM TO THE CODES AND STANDARDS OF THE FOLLOWING AGENCIES AS FURTHER CITED HEREIN:
- ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS, AS PUBLISHED IN "COMPILATION OF ASTM STANDARDS IN BUILDING
- AWS: AMERICAN WELDING SOCIETY INC., 550 NW LEJEUNE RD, MIAMI FL 33126 USA AS PUBLISHED IN "STANDARD D1.1-05, STRUCTURAL WELDING CODE."
- AISC: AMERICAN INSTITUTE FOR STEEL CONSTRUCTION, AS PUBLISHED IN "CODE FOR STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES": "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR

1.03 STRUCTURAL FABRICATION NOTES

ALL STRUCTURAL STEEL DETAILS SHALL BE DESIGNED IN ACCORDANCE WITH HE LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "SPECIFICATION FOR THE DESIGN. FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR "BUILDINGS" AND "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."

STRUCTURAL STEEL SHALL BE NEW STEEL CONFORMING TO THE FOLLOWING:

ASTM A572, GRADE 50

OTHER STEEL ASTM A36 ASTM A500, GRADE B STRUCTURAL TUBE

STRUCTURAL PIPE ASTM A53, GRADE B

HIGH STRENGTH BOLTS ASTM A325

E70XX ELECTRODES 2. STRUCTURAL STEEL FRAMING SHALL BE TRUE AND PLUMB BEFORE CONNECTIONS ARE FINAL FOR BOLTED OR WELDED.

- FIELD CUTTING OR ANY MODIFICATIONS OF STRUCTURAL STEEL SHALL NOT BE MADE WITHOUT PRIOR WRITTEN APPROVAL BY THE ENGINEER FOR EACH SPECIFIC CASE.
- WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS) 01.1 "STRUCTURAL WELDING CODE" USING E70XX ELECTRODES.
- MINIMUM THICKNESS FOR CONNECTION ANGLE AND GUSSET PLATE SHALL BE 3/4" U.O.N.
- WELD SHALL DEVELOP THE FULL STRENGTH OF THE MATERIAL BEING WELDED, UNLESS NOTED OTHERWISE, EXCEPT THAT FILLET WELD SHALL BE A MINIMUM OF 3/16".
- PROVIDE TEMPORARY ERECTION BRACING AND SUPPORTS TO HOLD STRUCTURAL STEEL FRAMING SECURELY IN POSITION. SUCH TEMPORARY BRACING AND SUPPORTS SHALL NOT BE REMOVED UNTIL PERMANENT BRACING OR STABILIZING ELEMENTS HAVE BEEN INSTALLED.
- ALL STRUCTURAL STEEL INCLUDING PLATES, ANGLES AND CONNECTION MATERIAL SHALL BE GALVANIZED IN ACCORDANCE WITH THE ASTM A123 AND A153.
- 9. ALL A325 BOLTS, NUTS, AND WASHERS TO BE GALVANIZED IN ACCORDANCE WITH ASTM A153, A384, AND A563.
- 10. CONNECTIONS SHOWN ON THESE DRAWINGS ARE GENERALLY SCHEMATIC. THEY ARE INTENDED TO DEFINE THE SPACIAL RELATIONSHIP OF THE FRAMED MEMBERS AND SHOW A FEASIBLE METHOD OF MAKING THE CONNECTION. ANY CONNECTION THAT IS NOT SHOWN OR IS NOT COMPLETELY DETAILED ON THE STRUCTURAL DRAWINGS SHALL BE DESIGNED BY AN ENGINEER, REGISTERED IN THE STATE WHERE CONSTRUCTION OCCURS, AND RETAINED BY THE FABRICATION. COMPLETELY DETAILED MEANS THE FOLLOWING

INFORMATION IS SHOW ON THE SHOP DETAIL DRAWINGS:

- A. ALL PLATE DIMENSIONS AND GRADE
- B. ALL WELD SIZES, LENGTHS, PITCHES, AND RETURNS.
- NUMBER AND TYPE OF BOLTS: WHERE BOLTS ARE SHOWN BUT NO NUMBER IS GIVEN, THE CONNECTION HAS NOT BEEN COMPLETELY DETAILED.
- E. WHERE PARTIAL INFORMATION IS GIVEN, IT SHALL BE THE MINIMUM REQUIREMENT FOR THE CONNECTION
- 11. BOLTED CONNECTIONS SHALL BE AS FOLLOWS

- C. EXCEPT WHERE SHOWN, ALL BEAM TO BEAM AND BEAM TO COLUMN CONNECTIONS TO BE DOUBLE ANGLE BEARING TYPE CONNECTIONS WITH THE HIGH STRENGTH BOLTS (THREADS EXCLUDED FROM THE SHEAR PLANE) AND HARDENED WASHERS



21 B Street Burlington, MA 01803 Tel: 781.273.2500 Fax: 781.273.3311 www.ebiconsulting.com



FNGINEER STAMP/SIGNATURE

CLIENT

clearw re

593 HERNDON PARKWAY HERNDON, VA 20170 OFFICE: (410) 953-7400 FAX: (410) 953-7408

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DRAWING SCALES NOTED ARE FOR 24"x36" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

		SUBMITTALS	
NO.	DATE	DESCRIPTION	BY
Α	02/05/10	FOR REVIEW	JK
В	02/17/10	REVISED PER COMMENTS	кк
0	02/19/10	FOR CONSTRUCTION	KK
1	04/01/10	REVISED SITE PLAN INFORMATION	кк
2	05/03/10	CONSTRUCTION FINAL	KK
3	05/14/10	REVISED PER DEPARTMENT OF PLANNING COMMENTS	KK

EBI JOB NO

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SITE INFO:

VA-WSH046-e LEISURE WORLD

19355 CYPRESS RIDGE TER LANSDOWNE, VA 20176

SHEET TITLE:

GENERAL NOTES

SHEET NO:

DRAWN BY CHECKED BY SA

GN-1

DATF: 02/05/10

PART 2 - PRODUCTS

- ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS. CERTIFICATION DOCUMENTS SHOULD BE MADE AVAILABLE FOR ENGINEER'S AND/OR CLEARWIRE'S REVIEW IF REQUESTED.
- B. WELDING ELECTRODES FOR MANUAL SHIELDED METAL ARC PROCESS SHALL CONFORM TO ASTM A-233. E70 SERIES BARE ELECTRODES AND GRANULAR FLUX USED IN THE SUBMERGED ARC PROCESS SHALL CONFORM TO AISC SPECIFICATIONS.

- A. BOLTS SHALL BE 3/4"0 (MINIMUM) CONFORMING TO ASTM A325. HOT DIP GALVANIZED PER ASTM A153 NUTS SHALL BE HEAVY HEX TYPE.
- B. ALL BOLTS SHALL BE INSTALLED IN SLIP CRITICAL CONNECTIONS CONFORMING TO AISC, USING THE 1/4" TURN METHOD.
- A. FABRICATION OF STEEL SHALL CONFORM TO THE AISC AND AWS STANDARDS AND CODES.
- A. ALL STRUCTURAL STEEL SHALL, BEFORE LEAVING THE SHOP OR FABRICATING PLANT, BE CLEANED OF ALL SCALE, RUST GREASE AND OTHER FOREIGN MATTER, AND SHALL BE GIVEN ONE (1) THOROUGH SHOP COAT, ON ALL SURFACES, OF AN APPROVED PRIMER.

THE MINIMUM DRY FILM THICKNESS OF PRIME COATS SHALL BE NOT LESS THAN TWO (2) MILS PER COAT.

2.06 PROTECTION

A. UPON COMPLETION OF ERECTION INSPECT ALL GALVANIZED STEEL AND PAINT ANY FIELD CUTS, WELDS OR GALVANIZATION BREAKS WITH ZING BASED PAINT. COLOR TO MATCH THE GALVANIZED PROCESS.

- A. PROVIDE ALL ERECTION EQUIPMENT, BRACING, PLANKING, FIELD BOLTS, NUTS, WASHERS, DRIFT PINS, AND SIMILAR MATERIALS WHICH DO NOT FORM A PART OF COMPLETED CONSTRUCTION BUT ARE NECESSARY FOR ITS PROPER ERECTION.
- B. ERECT AND ANCHOR ALL STRUCTURAL STEEL IN ACCORDANCE WITH AISC REFERENCE STANDARDS. ALL WORK SHALL BE ACCURATELY SET TO ESTABLISH LINES AND ELEVATIONS AND RIGIDLY FASTENED IN PLACE WITH SUITABLE ATTACHMENTS TO TO THE CONSTRUCTION OF THE BUILDING.
- C. TEMPORARY BRACING, GUYING AND SUPPORT SHALL BE PROVIDED TO KEEP THE STRUCTURE SAFE AND ALIGNED AT ALL TIMES DURING CONSTRUCTION, AND TO PREVENT DANGER TO PERSONS AND PROPERTY. CHECK ALL TEMPORARY LOADS AND STAY WITHIN SAFE CAPACITY OF ALL BUILDING COMPONENTS.

DIVISION 13 00 00 - SPECIAL CONSTRUCTION ANTENNA INSTALLATION

PART 1 GENERAL

WORK INCLUDED

- ANTENNAS AND COAXIAL CABLES ARE FURNISHED BY THE CLEARWIRE'S UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST THE ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUB-CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL PROPERTY.
- B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND THE CLEARWIRE'S SPECIFICATIONS.
- C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS
- D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT TEST
- E. INSTALL COAXIAL CABLES AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND THE EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
- F. ANTENNA AND COAXIAL CABLE GROUNDING:
- 1. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH ANDREWS CONNECTOR/SPLICE WEATHERPROOFING KIT TYPE #221213 OR EQUAL.
- 2. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS).

1.02 RELATED WORK (ROOF TOP SITES)

FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH THE OTHER TRADES PRIOR TO BID:

- FLASHING OF OPENING INTO OUTSIDE WALLS . SEALED AND CAULKING ALL OPENINGS
- 4. CUTTING AND PATCHING
- 1.03 REQUIREMENTS OF REGULATOR AGENCIES

FURNISH U.L. LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE. INSTALL IN CONFORMANCE WITH U.L. STANDARDS WHERE APPLICABLE.

INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATION IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF THE STATE AND LOCAL BUILDING CODES, AND SPECIAL CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

EIA – ELECTRONIC INDUSTRIES ASSOCIATION RS – 22. STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.

FAA - FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 70/7460-IH, OBSTRUCTION MARKING AND LIGHTING

FCC - FEDERAL COMMUNICATIONS COMMISSION RULES AND REGULATIONS FORM 715, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA OBSTRUCTION LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES.

NEC - NATIONAL ELECTRIC CODE - ON TOWER LIGHTING KITS

UL - UNDERWRITIER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS

IN ALL CASES, PART 77 OF THE FAA RULES AND PARTS 17 AND 22 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSESE ANY OTHER STANDARDS OR SPECIFICATIONS.

2006 LIFE SAFETY CODE NFPA - 101

DIVISION 31 00 00 - EARTHWORK

WORK INCLUDED: REFER TO THE SURVEY AND SITE PLAN FOR WORK INCLUDED.

1.02 RELATED WORK

A. CONSTRUCTION OF FOUNDATIONS

- A. ROAD AND SITE MATERIALS: FILL MATERIAL SHALL BE ACCEPTABLE, SELECT FILL SHALL BE IN ACCORDANCE WITH LOCAL DEPARTMENT OF HIGHWAY AND PUBLIC TRANSPORTATION STANDARD SPECIFICATION.
- B. SOIL STERILIZER SHALL BE EPA REGISTERED OF LIQUID COMPOSITION AND OF PREEMEGENCE DESIGN.
- C. SOIL STABILIZER FABRIC SHALL BE MIRAFI 600X OR EQUAL AT ACCESS ROAD AND AT COMPOUND
- D. GRAVEL FILL: WELL GRADED, HARD, DURABLE, NATURAL SAND AND GRAVEL, FREE FROM ICE AND SNOW, ROOTS, SOD RUBBISH, AND OTHER DELETERIOUS OR ORGANIC MATTER, MATERIAL SHALL CONFORM TO THE GRAVEL FILL TO BE IN LIFTS OF 9" MAXIMUM THICKNESS AND COMPACTED TO 90% DENSITY.
- E. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

A. COMPACTION SHALL BE ACCOMPLISHED BY MECHANICAL MEANS. LARGER AREAS SHALL BE COMPACTED BY SHEEPS FOOT, VIBRATORY OR RUBBER TIED ROLLERS WEIGHING AT LEAST FIVE TONS. SMALLER AREAS SHALL BE COMPACTED BY POWER-DRIVER, HAND-HELD TAMPERS.

3.01 INSPECTIONS: LOCAL BUILDING INSPECTOR SHALL BE TIMELY NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS.

3.02 PREPARATION

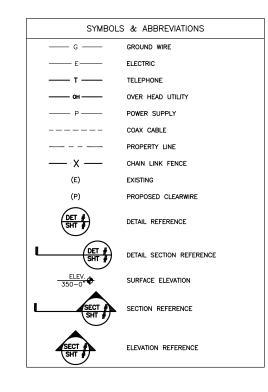
- A. CLEAR AND REMOVE ALL TREES, BRUSH STUMPS AND DEBRIS FROM SITE AREA AND ACCESS ROAD RIGHT OF WAY AS REQUIRED
- B. PRIOR TO OTHER EXCAVATION AND CONSTRUCTION EFFORTS GRUB ORGANIC MATERIAL TO A MINIMUM OF 6" BELOW ORIGINAL
- C. UNLESS OTHERWISE INSTRUCTED BY THE CLEARWIRE'S, REMOVE TREES, BRUSH STUMPS AND DEBRIS FROM THE PROPERTY TO AN AUTHORIZED DISPOSAL LOCATION.
- D. PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, ROLL THE SOIL.
- E. WHERE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, LINE THE GRUBBED AREAS WITH STABILIZER MAT PRIOR TO PLACEMENT OF FILL OR BASE MATERIAL.

- A. THE SITE AND TURNAROUND AREAS SHALL BE AT THE SUB-BASE COURSE ELEVATION PRIOR TO THE FORMING FOUNDATIONS. GRADE OR FILL THE SITE AND ACCESS ROAD AS REQUIRED TO PRODUCE EVEN DISTRIBUTION OF SPOILS RESULTING FROM FOUNDATION EXCAVATIONS. THE RESULTING GRADE SHALL CORRESPOND WITH SAID SUB-BASE COURSE. ELEVATIONS ARE TO BE CALCULATED FROM FINISHED GRADES OR SLOPES INDICATED.
- B. THE ACCESS ROAD SHALL BE BROUGHT TO BASE COURSE ELEVATION PRIOR TO FOUNDATION CONSTRUCTION.
- C. DO NOT CREATE DEPRESSIONS WHERE WATER MAY POND.
- D. THE CONTRACTOR INCLUDES ALL NECESSARY GRADING, BANKING, DITCHING AND COMPLETE SURFACE COURSE FOR ACCESS ROAD, ALL ROADS OR ROUTE UTILIZED FOR ACCESS TO THE SITE COMMENCING AT THE POINT OF INTERSECTION WITH THE PUBLIC THOROUGHFARE IS INCLUDED IN SCOPE OF WORK UNLESS OTHERWISE INDICATION.
- E. WHEN IMPROVING AN EXISTING ACCESS ROAD, GRADE THE EXISTING ROAD TO REMOVE ANY ORGANIC MATTER AND SMOOTH THE SURFACE BEFORE PLACING FILL OR STONE.
- F. PLACE FILL OR STONE IN 3" MAXIMUM LIFTS AND COMPACT BEFORE PLACING NEXT LIFT.
- THE FINISH GRADE, INCLUDING TOP SURFACE COURSE, SHALL EXTEND A MINIMUM OF 12" BEYOND THE SITE FENCE AND SHALL COVER THE AREA AS INDICATED.
- H. RIP RAP SHALL BE APPLIED TO THE SIDE SLOPES OF ALL FENCED SITE AREAS, PARKING AREAS AND TO ALL OTHER SLOPES GREATER THAN 2:1.
- RIP RAP SHALL BE APPLIED TO THE SIDES OF DITCHES OR DRAINAGE SWALES AS INDICATED ON PLANS.
- J. RIP RAP ENTIRE DITCH FOR 6'-0" IN ALL DIRECTIONS AT CULVERT OPENINGS.
- K. SEED FERTILIZER AND STRAW COVER SHALL BE APPLIED TO ALL OTHER DISTURBED AREAS AND DITCHES, DRAINAGE, SWALES, NOT OTHERWISE RIP RAPPED.
- UNDER NO CIRCUMSTANCES SHALL DITCHES, SWALES OR CULVERTS BE PLACED SO THEY DIRECT WATER TOWARDS, OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO SITE. IF OWNER DESIGNS OR IF DESIGN ELEVATIONS CONFLICT WITH THIS GUIDANCE ADVISE THE OWNER IMMEDIATELY.
- M. IF A DITCH LIES WITH SLOPES GREATER THAN TEN PERCENT, MOUND DIVERSIONARY HEADWALLS IN THE DITCH AT CULVERT ENTRANCES. RIP RAP THE UPSTREAM SIDE OF THE HEADWALL AS WELL AS THE DITCH FOR 6'-0" ABOVE THE CULVERT ENTRANCE.
- N. SEED AND FERTILIZER SHALL BE APPLIED TO SURFACE CONDITIONS WHICH WILL ENCOURAGE ROOTING. RAKE AREAS TO BE SEEDED TO EVEN THE SURFACE AND TO LOOSEN THE SOIL.
- O. SOW SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.
- P. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE GROWTH OF SEEDED AND LANDSCAPED AREAS BY WATERING UP TO THE POINT OF RELEASE FROM THE CONTRACT. CONTINUE TO REWORK BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.
- R. COMPACTION SHALL BE TO ASTM D-1557 FOR SITE WORK AND 95% MAXIMUM DENSITY UNDER EQUIPMENT FOUNDATION AREAS, AREAS OF SETTLEMENT WILL BE EXCAVATED AND REFILLED AT CONTRACTORS' EXPENSE.
- S. THE COMPACTION TEST RESULTS SHALL BE AVAILABLE PRIOR TO THE CONCRETE POUR.
- U. PROTECT SEEDED AREAS FROM EROSION BY SPREADING STRAW TO A UNIFORM LOOSE DEPTH OF 1"-2". STAKE AND TIE DOWN AS REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET SHALL BE AN ACCEPTABLE ALTERNATE.
- V. ALL TREES PLACED IN CONJUNCTION WITH A LANDSCAPE CONTRACT SHALL BE WRAPPED, TIED WITH HOSE PROTECTED WIRE AND SECURED TO STAKES EXTENDING 2'-0" INTO THE GROUND ON ALL FOUR SITES OF THE TREE.
- W. ALL EXPOSED AREAS SHALL BE PROTECTED AGAINST WASHOUTS AND SOIL EROSION. STRAW BALES SHALL BE PLACED AT THE INLET APPROACH TO ALL NEW OR EXISTING CULVERTS. REFER TO DETAIL DRAWINGS.

STRUCTURAL DESIGN PARAMETERS

BUILDING CODE: INTERNATIONAL BUILDING CODE-2006 VIRGINIA CONSTRUCTION CODE-2006 OCCUPANCY CATEGORY: II (FXISTING BUILDING) III (TELECOMMUNICATION EQUIPMENT) 30 PSF SNOW LOADS: GROUND SNOW LOAD, Pg: EQUATION 7-1 FLAT ROOF CONVERSION FACTOR SNOW EXPOSURE FACTOR, Ce: THERMAL FACTOR, Ct: 20 PSF 0.7 SNOW LOAD IMPORTANCE FACTOR: BUILDING FLAT ROOF SNOW LOAD, Pf: 1.0 (EXISTING BUILDING) 20 PSF + DRIFT WIND LOADS: BASIC WIND SPEED , V: 90 MPH (3-SECOND GUST) 70 MPH (FASTEST-MILE) IMPORTANCE FACTOR, I: 1.0 (EXISTING BUILDING) 1.1 (TELECOMMUNICATION EQUIPMENT) EXPOSURE CATEGORY: INTERNAL PRESSURE COEFFICIENT:

(EQUIPMENT ADDS INSIGNIFICANT DEAD LOAD, FULL BUILDING SEISMIC ANALYSIS NOT REQUIRED)
COMPONENT IMPORTANCE FACTOR, I: 1.25
SPECTRAL ACCELERATION 5HORT PERIOD, S < 0.20
SPECTRAL ACCELERATION 1-SECOND PERIOD, S < 0.08 SPECIFIC ACCELERATION 1—SECRET 2...
STE CLASS:
SPECTRAL RESPONSE COEFFICIENT, SDS:
SPECTRAL RESPONSE COEFFICIENT, SD1:
SEISMIC DESIGN CATEGORY, SDC 0.24



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Α	02/05/10	FOR REVIEW	JK
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81090526

SITE INFO:

VA-WSH046-e LEISURE WORLD

9355 CYPRESS RIDGE TER LANSDOWNE, VA 20176

SHEET TITLE:

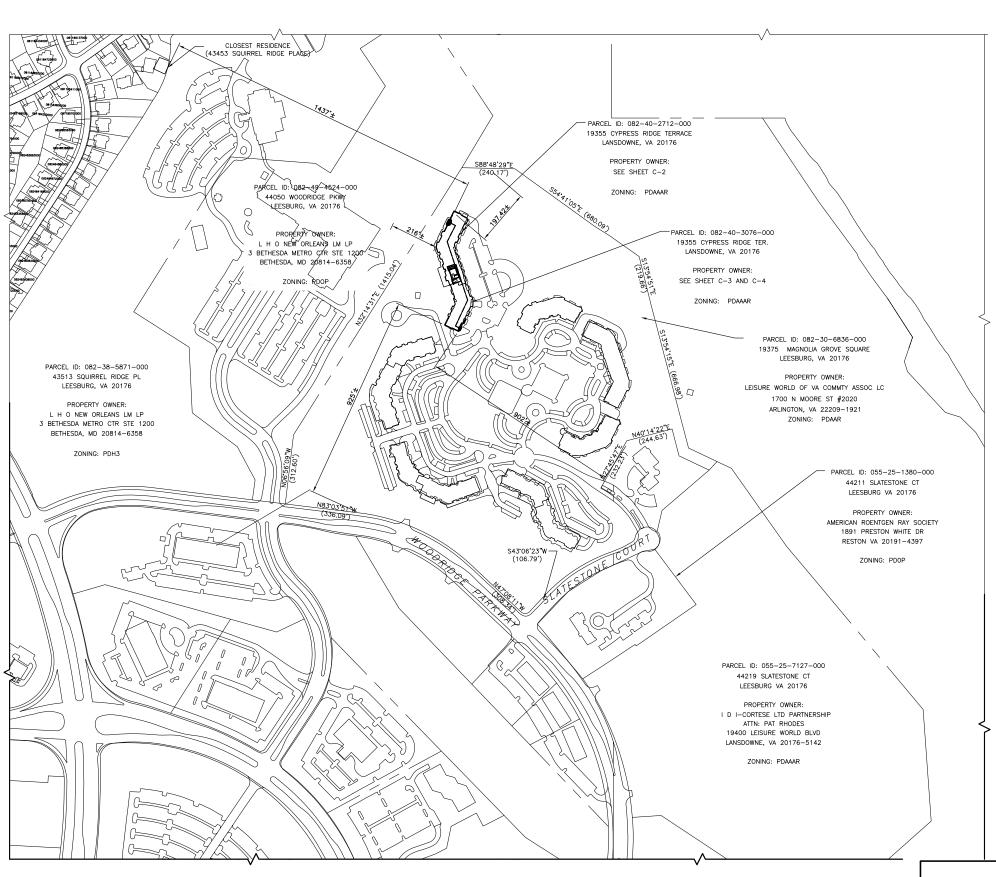
GENERAL NOTES

DRAWN BY: CHECKED BY SA

> DATF: 02/05/10

SHEET NO:

GN-2



GRAPHIC SCALE

(IN FEET)

OVERALL SITE PLAN



- 1. SITE INFORMATION SHOWN HEREON, IN THE AS AREA OF THE PROPOSED EQUIPMENT, AS WELL AS THE BOUNDARY INFORMATION, IS TAKEN FROM THE LOUDOUN COUNTY MAPPING SYSTEM OF THE LOUDOUN COUNTY GOVERNMENT WEBSITE. THIS PLAN IS NOT THE RESULT OF A BOUNDARY OR TOPOGRAPHIC SURVEY AND, THEREFORE, IS SUBJECT TO EASEMENTS AND RESTRICTIONS THAT MAY BE RECORDED OR UNRECORDED AND MAY NOT BE SHOWN HEREON.
- THE EXISTING SITE IS SERVICED BY PUBLIC WATER AND SEWER. NO WATER OR SEWER UTILITIES ARE REQUIRED FOR THE PROPOSED INSTALLATION.
- 3. THERE ARE NO NEW SIGNS PROPOSED FOR THIS FACILITY.
- 4. NO ADDITIONAL LIGHTS ARE PROPOSED FOR THIS FACILITY.
- 5. EXISTING UTILITY LOCATION INFORMATION SHOWN ON THESE PLANS IS FOR THE CONTRACTOR'S CONVENIENCE ONLY. WHILE THE INFORMATION SHOWN HAS BEEN GATHERED FROM PLANS AND SOURCES DEEMED TO BE RELIABLE, THE CORRECTNESS OF COMPLETENESS OF THE INFORMATION SHOWN IS NOT WARRANTED OR GUARANTEED. THE CONTRACTOR SHALL VERIFY ALL INFORMATION TO HIS OWN SATISFACTION.
- THE PROPOSED IMPROVEMENTS ARE NOT LOCATED WITHIN A MAJOR OR MINOR FLOODPLAIN AS PER THE LOUDOUN COUNTY GIS WEESSITE AND IS LOCATED WITH ZONE X, AN AFEA OF MINIMAL FLOODING, AS PER FEMA COMMUNITY PANEL NO. 51107C02650 EFFECTIVE DATE JULY 5, 2007.
- 7. COLLOCATION OF WIRELESS COMMUNICATION EQUIPMENT ON THE ROOF OF AN EXISTING BUILDING TO INCLUDE UP TO (3) PANEL ANTENNAS, (5) BACKHAUL ANTENNAS, (1) GPS, (1) WALL MOUNTED GENERATOR PLUG AND ASSOCIATED EQUIPMENT CABINETS. SITE IS AN UNMANNED TELECOMMUNICATIONS FACILITY.
- 8. REQUIRED NUMBER OF EMPLOYEES ZERO (UNMANNED FACILITY)
- 9. REQUIRED NUMBER OF PARKING SPACES ZERO (UNMANNED FACILITY EXISTING PARKING EXISTS ON SITE)
- 10. THE APPLICANT SHALL PROVIDE A CERTIFICATION FROM A REGISTERED ENGINEER THAT THE STRUCTURE WILL MEET THE APPLICABLE DESIGN STANDARDS FOR WIND LOADS OF ELECTRONIC INDUSTRIES ASSOCIATION (EIA) FOR LOUDOUN COUNTY.
- 11. ZONING INFORMATION IS TAKEN FROM THE LOUDOUN COUNTY GOVERNMENT WEBSITE ZONING MAP.
- 12. PROPOSED UNMANNED EQUIPMENT STRUCTURE DOES NOT EXCEED 500 SF TOTAL GROSS FLOOR AREA.
- 13. ALL UNUSED EQUIPMENT AND FACILITY FROM A COMMERCIAL PUBLIC TELECOMMUNICATIONS SITE SHALL BE REMOVED WITHIN 90 DAYS OF CESSATION OF COMMERCIAL PUBLIC TELECOMMUNICATIONS USE AND THE SITE SHALL BE RESTORED AS CLOSELY AS POSSIBLE TO ITS ORIGINAL CONDITION (SECTION 5–618B(3)(M) OF THE 1993 ZONING ORDINANCE). ANTENNAS THAT ARE MOUNTED TO THE BUILDING SHALL BE PAINTED TO MATCH THE BUILDING FACADE COLOR AND TEXTURE. ANTENNAS THAT EXTEND BEYOND THE BUILDING SHALL BE PAINTED TO MATCH THE SKY.
- 14. UPPER ROOF AREA: 39,702± UPPER ROOF AREA COVERAGE: 2,829± ROOF AREA COVERAGE: 7.1%
- 15. PER THE REVISED 1993 LOUDOUN COUNTY ZONING ORDINANCE SECTION 5-618, TELECOMMUNICATIONS ANTENNAS ARE PERMITTED PROVIDED THE STANDARDS IN SECTION 5-618(A) ARE MET. THE ZONING DISTRICT IS PD-AAAR (PLAN DEVELOPMENT ACTIVE ADULT AGE RESTRICTED).
- 16. TOTAL LAND DISTURBED AREA: N/A
- 17. THIS SITE IS EXEMPT FROM STORM WATER MANAGEMENT REQUIREMENTS.
- 18. THIS PLAN IS ADMINISTERED UNDER THE REVISED 1993 ZONING
- 19. NO NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
- 20. THIS FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (THERE IS
- 21. POWER TO THIS FACILITY WILL BE MOUNTED BY A SEPARATE METER.
- 22. SUBCONTRACTOR TO VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEERING PRIOR TO INSTALLATION. SEE ANTENNA CONFIGURATION SHEET FOR SITE SPECIFIC DETAILS.
- 24. THE BUILDING IS LOCATED AT 19355 CYPRESS RIDGE TERRACE, LANSDOWNE, VA 20176.

NO SURVEY FOR THIS PROPERTY WAS PERFORMED.

THE PROPERTY INFORMATION WAS COMPILED FROM THE ONLINE ASSESSORS INFORMATION FOR LOUDOUN COUNTY AND A SET OF CONSTRUCTUION DRAWINGS BY CHRISTOPHER CONSULTANTS. LTD. OF STERLING, VA. THE CONSTRUCTION DRAWINGS ARE DATED MAY 2004 AND THE PROJECT NO IS 86-45-K4.



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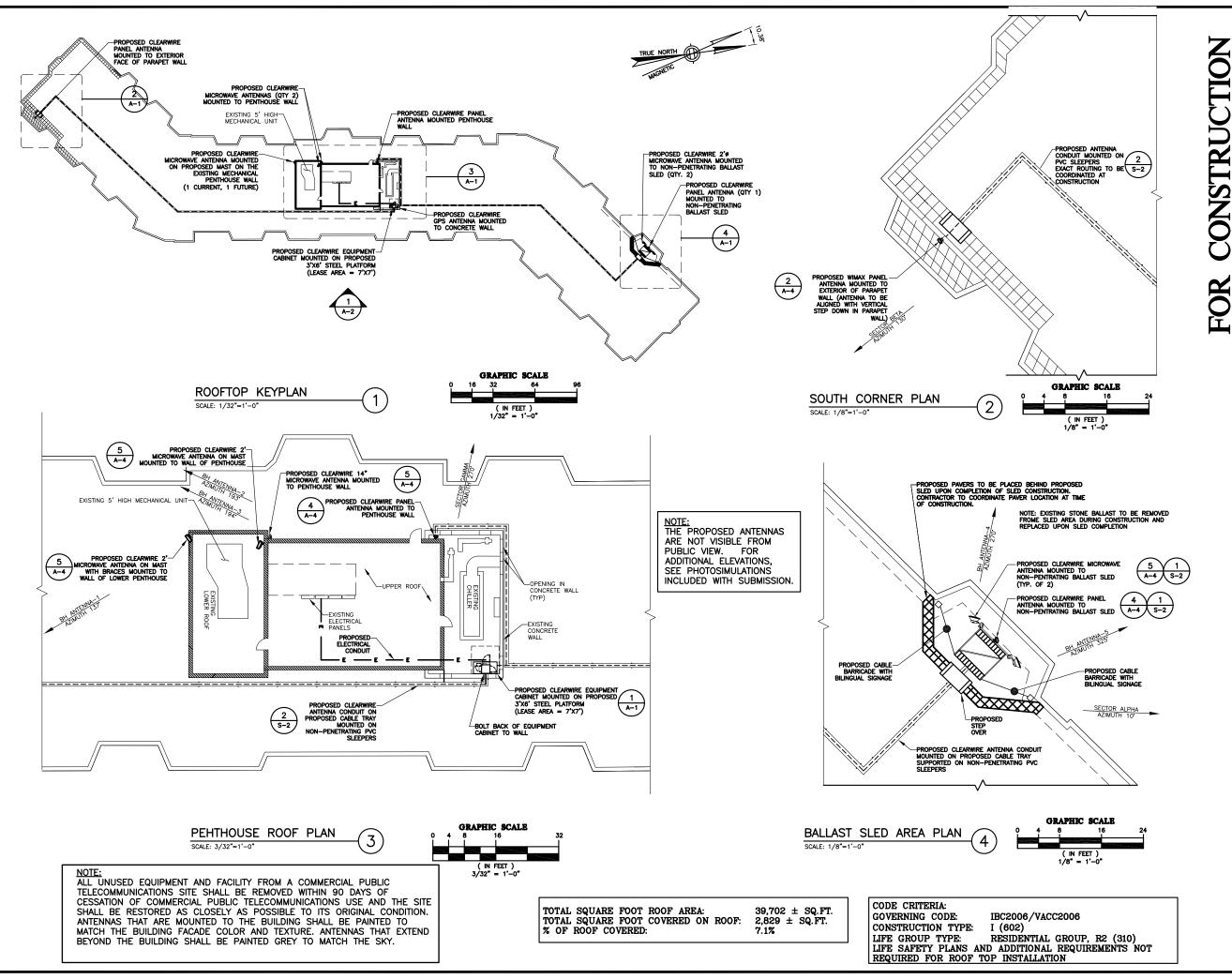
19355 CYPRESS RIDGE TER LANSDOWNE, VA 20176

SHEET TITLE:

SITE PLAN

DRAWN BY:	SHEET NO:
JK	
CHECKED BY:	\sim 1
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ROOFTOP KEYPLAN, SOUTH CORNER PLAN, PENTHOUSE ROOFTOP. & BALLAST SLED AREA PLAN

DRAWN BY: JK	SHEET NO:
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DATE:	

02/05/10

NOTE:
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NOTE:
THE PROPOSED ANTENNAS
ARE NOT VISIBLE FROM
PUBLIC VIEW. FOR
ADDITIONAL ELEVATIONS,
SEE PHOTOSIMULATIONS
INCLUDED WITH SUBMISSION.

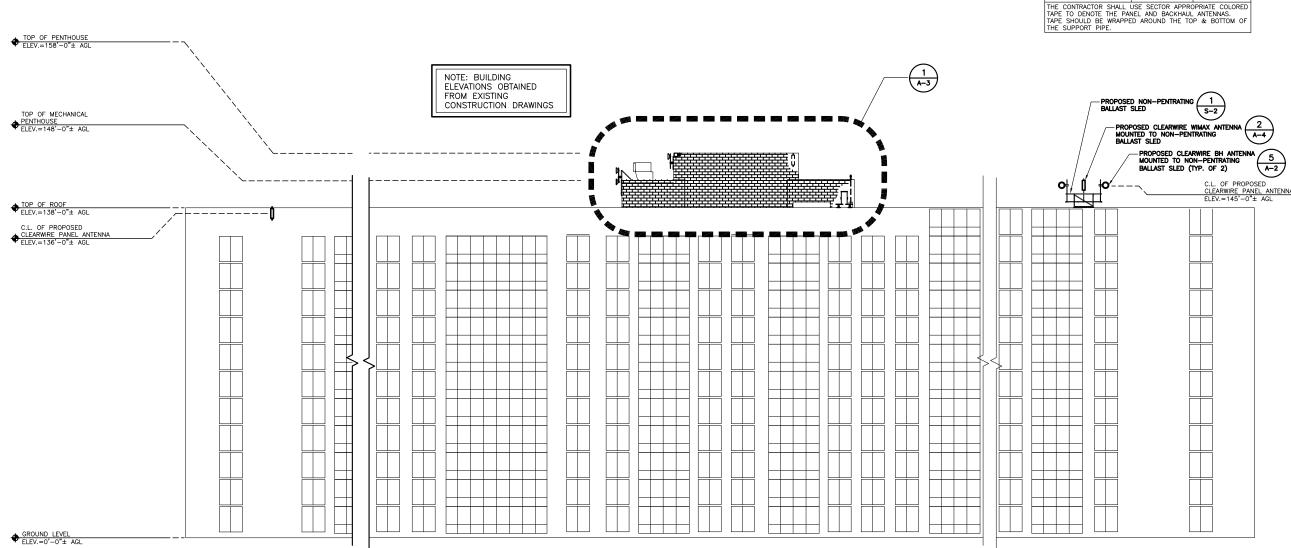
CLEARWIRE RF SYSTEM SCHEDULE-PANEL ANTENNAS

SECTOR	ANTENNA TECHNOLOGY	ANTENNA LABEL	AZIMUTH	DOWN TILT M	DOWN TILT E	RAD CENTER (FT. A.G.L.)	ANTENNA MAKE	ANTENNA MODEL	FIBER SIZE (IN.)	FIBER LENGTH (FT.)	BTS	COAX SIZE (IN.)	COAX LENGTH (FT.)	COAX MANUF.	COAX MODEL
ALPHA	WIMAX	01	10	0.	6.	145'	ARGUS	LLPX310R	1 5/8	225	SAMSUNG	1/2	3	COMMSCOPE	SFX 500
ALFIIA	WIMAA	P1	'0	"	"	145	ANGOS	LLFXSTOR	1 3/6	223	FRH	1/2	3	COMMSCOPE	SFX 500
BETA	WIMAX	02	130	0.	7.	136	ARGUS	LLPX310R	1 5/8	255	SAMSUNG	1/2	3	COMMSCOPE	SFX 500
DEIA	WIMAX	P2	130	0	٦	136	ARGUS	LLPXSTOR	1 3/6	255	FRH	1/2	3	COMMSCOPE	SFX 500
GAMMA	WIMAX	03	270	0.	0.	156'	ARGUS	LLPX310R	1 5/8	70	SAMSUNG	1/2	3	COMMSCOPE	SFX 500
GAMINIA	WIMAX	P3	270	U		156	ARGUS	LLFXSTOR	1 3/6	70	FRH	1/2	3	COMMSCOPE	SFX 500
GPS	WIMAX	Y4 B1	-	-	-	-	PC TEL ANTENNA & PRODUCTS GROUP	GPS-TMG-26NMS	-	-	-	1/2	10	COMMSCOPE	SFX 500

* COAX CABLE LENGTHS ARE ESTIMATES; CONTRACTOR SHALL VERIFY IN FIELD.
** MINIMUM SEPARATION BETWEEN GPS ANTENNAS IS 4'. INSTALL GPS FOR SOUTHERN EXPOSURE AND REGIONAL SNOW DEPTH.

	CLEARWIRE RF SYSTEM SCHEDULE-BACKHAUL DISH ANTENNAS											
ANTENNA	ANTENNA LABEL	AZIMUTH	DIAMETER (FT.)	FREQUENCY (GHZ)	RAD CENTER (FT. A.G.L.)	ANTENNA POSITION	ANTENNA MAKE	ANTENNA MODEL	COAX SIZE (IN.)	COAX LENGTH (FT.)	COAX MANUF.	END SITE ID
BH ANTENNA - 1	GY1	137*	2	18	151	BETA	ANDREW	VHLP2-18	1/2	120	ANDREW	VA-WSH5678
BH ANTENNA - 2	GY2	193*	2	5.8	156	BETA	GEMINI	OS GEMINI 14	1/2	120	ANDREW	VA-WSH328
BH ANTENNA - 3	GY3	194*	2	18	156	BETA	ANDREW	VHLP2-18	1/2	120	ANDREW	VA-WSH5961
BH ANTENNA - 4	GY3	270°	2	18	145	GAMMA	ANDREW	VHLP2-18	1/2	120	ANDREW	VA-WSH039
BH ANTENNA - 5	GY3	325°	1	23	145	GAMMA	ANDREW	VHLP1-23	1/2	120	ANDREW	VA-WSH1227

COAX LIN	E COLOR CODI	NG
TECH	CABLE COLOR	ABBR.
WIMAX	PURPLE	Р
WIMAX	ORANGE	0
WIMAX GPS	YELLOW	Y
WIMAX GPS	BLUE	В
BACKHAUL	GREY	GY
THE CONTRACTOR SHALL	USE SECTOR APPRO	PRIATE COLORED



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SITE INFO:

VA-WSH046-e LEISURE WORLD

19355 CYPRESS RIDGE TER LANSDOWNE, VA 20176

SHEET TITLE:

ELEVATION & ANTENNA SPECIFICATIONS

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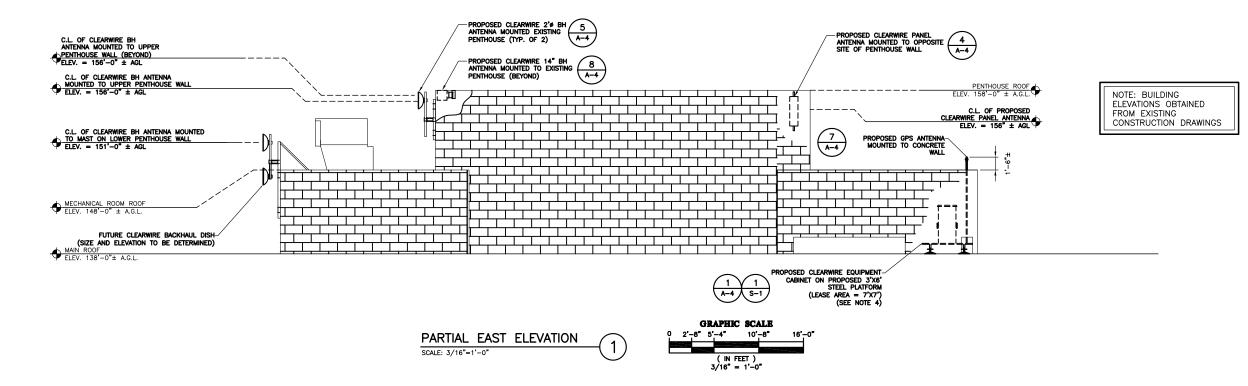
02/05/10

A-2

EAST ELEVATION
SCALE: 1/16"=1'-0"

-(1)

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NOTE:
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SHEET TITLE:

PARTIAL EAST ELEVATION

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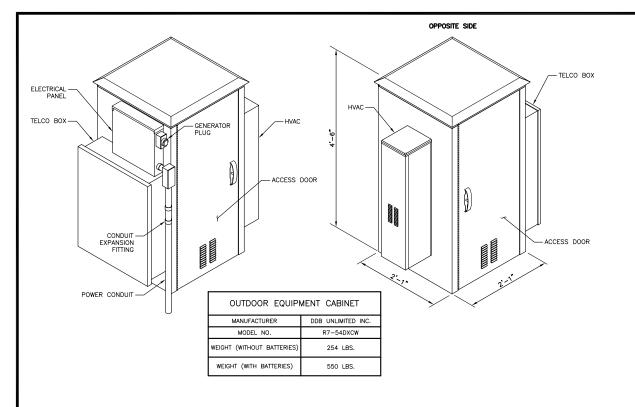
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CHECKED BY:

BY:

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SA PATE: 02/05/10



ARGUS QUADPOLE ANTENNA

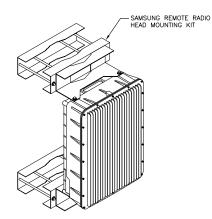
(PANEL ANTENNA)

SCALE: N.T.S.

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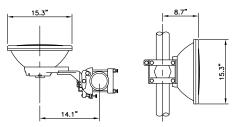
ARGUS LLPX310R REMOTE TILT PANEL ANTENNA						
WEIGHT 28.66 LBS.						
MAX WIND SPEED	124 MPH					
CONNECTOR	4-7/8 DIN(F)					
RET TYPE	INTERNAL MOTOR & MANUAL OVERRIDE					
RET INTERFACE AISG1 REMOTELY UPGRADEABLE						
RET CONNECTOR SINGLE AISG1 8 PIN MALE						

13.20



SAMSUNG REMC	TE RADIO HEAD
DIMENSIONS (WxHxD):	11.6"x16.1"x5.3"
WEICHT	33 I DC



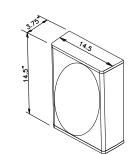


ANDREW VHLP1			
WEIGHT	19.7 LBS.		

(6)

(8)

BACKHAUL ANTENNA (MICROWAVE ANTENNA)



SAMSUNG REMO	TE RADIO HEAD
DIMENSIONS (WxHxD):	14.5"x14.5"x3.75"
WEIGHT	12.1 LBS.

REMOTE RADIO HEAD (MICROWAVE ANTENNA) SCALE: N.T.S.

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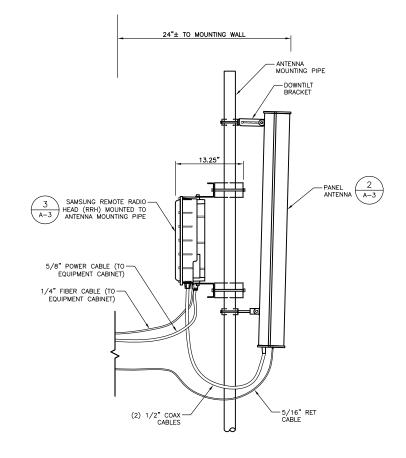
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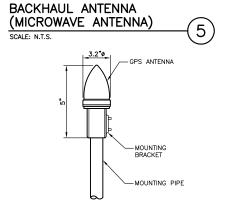
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TYPICAL ANTENNA LAYOUT

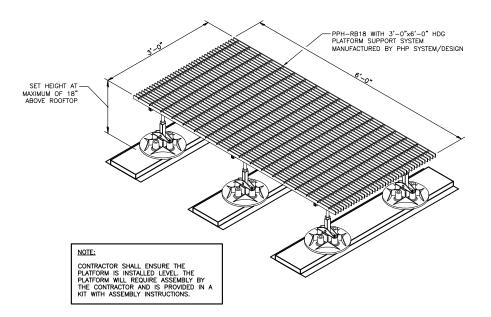


ANDREW VHLP2

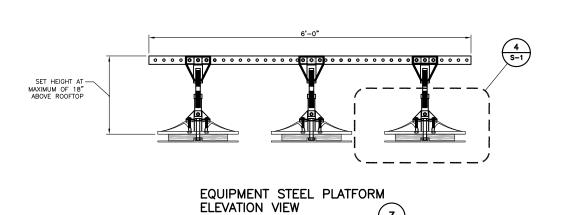
27.1 LBS.

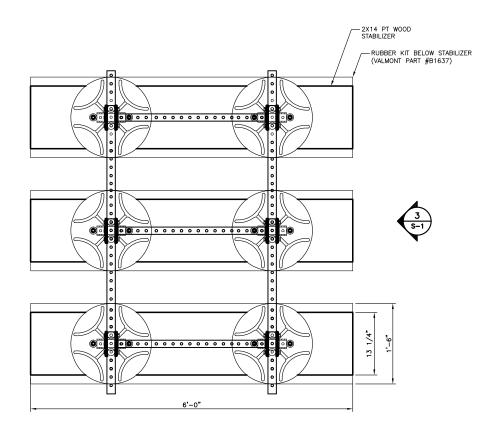
PC TEL GPS-TMG-26N GPS ANTENNA				
ANTENNA DIMENSIONS 5.0" H x 3.2" D				
WEIGHT	0.6 LBS.			
PADOME COLOR	WHITE			

CLEARWIRE **GPS ANTENNA**

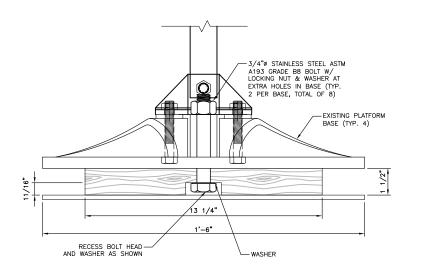


EQUIPMENT STEEL PLATFORM ISOMETRIC VIEW SCALE: N.T.S.





EQUIPMENT STEEL PLATFORM PLAN VIEW SCALE: N.T.S.



BASE SUPPORT DETAIL SCALE: N.T.S.

21 B Street



Burlington, MA 01803 Tel: 781.273.2500 Fax: 781 273 3311 www.ebiconsulting.com



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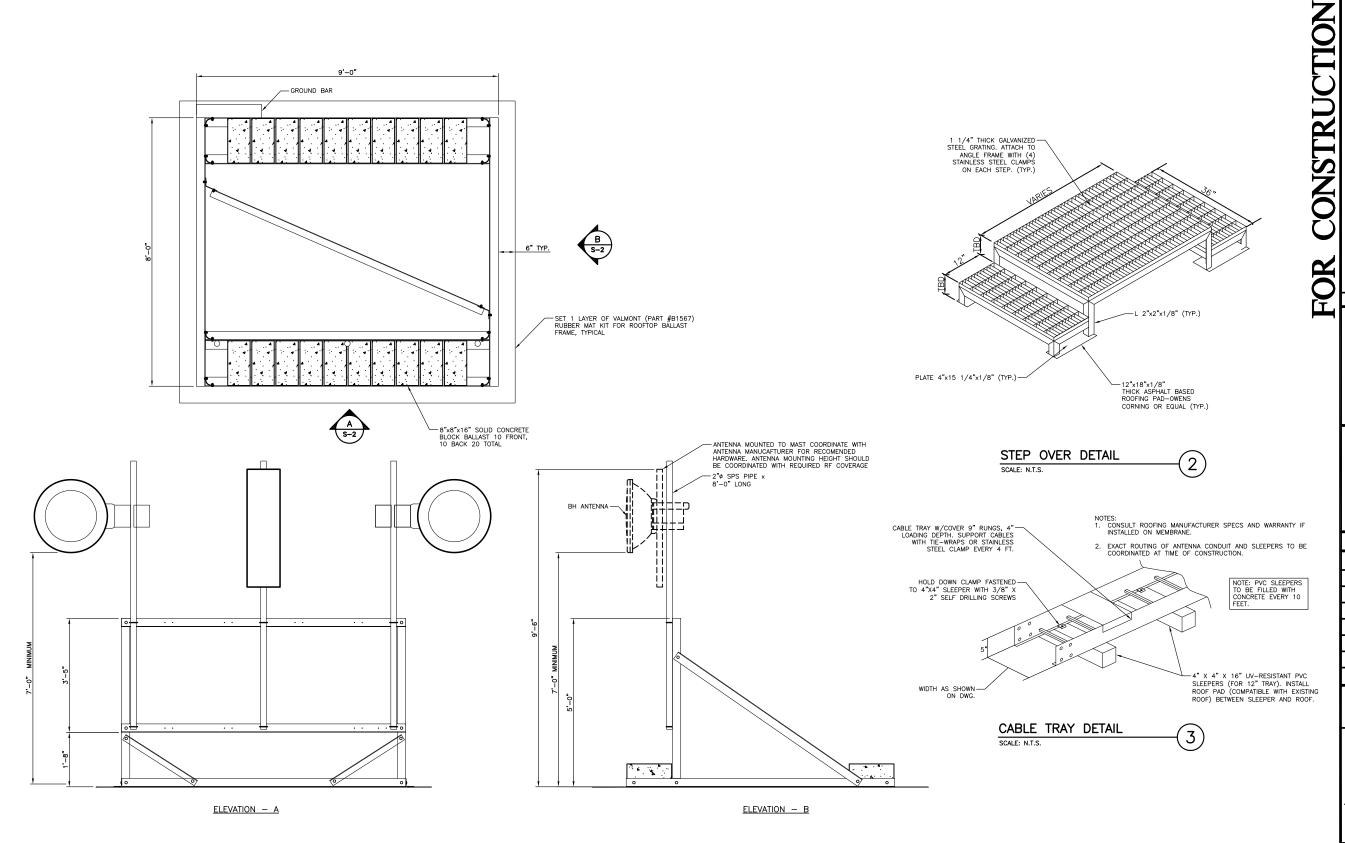
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S-1



TYPICAL NON-PENETRATING ROOF

MOUNT ASSEMBLY DETAIL

SCALE: 3/4" = 1'-0"



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NOTES TO CONTRACTOR

- ALL DRAWING SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL AND ENGINEERING DRAWINGS AND SPECIFICATION.
- ALL ELECTRICAL WORK SHALL BE PERFORMED TO COMPLY WITH CLEARWIRE INSTALLATION GUIDE PRIOR TO SUBMITTING BID.
- 3. THE ELECTRICAL CONTRACTOR SHALL INITIATE AND COORDINATE EXACT UTILITY SERVICES WITH LOCAL UTILITY COMPANIES IN ADVANCE OF CONSTRUCTION TO CONFIRM CAPACITIES, CONNECTION POINT, ROUTING AND ASSOCIATED WORK REQUIREMENTS TO COMPLETE THE INSTALLATION TO MEET CONSTRUCTION SCHEDULE. THE CONTRACTOR TO PROVIDE AND INSTALL ALL UNDERGROUND CABLES AND DUCT BANKS AS REQUIRED BY THE UTILITY COMPANY. COORDINATE UNDERGROUND SERVICE CONDUIT ROUTE IN FIELD BETWEEN CLEARWIRE, THE CONTRACTOR, AND RESPECTIVE UTILITY COMPANIES
- 4. THE CONTRACTOR SHALL PROVIDE TEMPORARY LIGHTING AND POWER AS REQUIRED IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE AND OSHA REQUIREMENTS TO COMPLETE WORK WITHOUT INTERRUPTION OF
- 5. THE LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE PLANS ARE DIAGRAMMATIC. EXACT LOCATION AND ROUTING SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD PRIOR TO INSTALLATION WITH THE APPROVAL OF CLEARWIRE CONSTRUCTION MANAGER AND BUILDING OWNER OR OTHERWISE BE
- 6. ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT (NEW AND EXISTING) SHALL BE FIELD VERIFIED WITH THE OWNER'S REPRESENTATIVE AND EQUIPMENT SUPPLIER PRIOR TO ROUGH—IN OF CONDUITS. ALL EQUIPMENT SHALL BE PROPERLY CONNECTED ACCORDING TO THE NAMEPLATE DATA FURNISHED ON THE EQUIPMENT CONNECTED ACCORDING TO THE RAMEPTAGE DATA FORMATION AT THE TIME OF DESIGN DRAWINGS). LOCATION OF OUTLETS, BOXES, ETC. AND THE TYPE OF CONNECTION (PLUG OR DIRECT), SHALL BE CONFIRMED WITH THE OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN
- 7. THE CONTRACTOR SHALL PERFORM IEEE 'THREE POINT FALL OF POTENTIAL'
 RESISTANCE TO EARTH TEST TO FOR GROUND ELECTRODE SYSTEM. THE
 CONTRACTOR SHALL INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO
 ACHIEVE A TEST RESULT OF 5 OHMS OR LESS. REFER TO CLEARWIRE INSTALLATION
 GUIDE FOR FULL REQUIREMENT.
- 8. PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS OR RISERS THROUGH BUILDINGS. DO NOT PENETRATE STRUCTURAL MEMBERS WITHOUT CONSTRUCTION MANAGERS APPROVAL. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE PACKED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FILL FOR FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.
- 9. PENETRATION OF THE ROOF MEMBRANE IS PROHIBITED.
- 10. ELECTRICAL EQUIPMENT SHALL BE FIRMLY SECURED TO THE SURFACE ON WHICH IT IS MOUNTED.

ELECTRICAL SPECIFICATIONS

SECTION 16010 - GENERAL PROVISIONS

- A. ALL APPLICABLE PROVISIONS OF DIVISION 01 GOVERN WORK UNDER THIS DIVISION. REFER TO THIS ARTICLE ON THE DRAWINGS FOR ADDITIONAL INFORMATION.
- B. THIS CONTRACTOR SHALL GUARANTY FULLY ALL WORKMANSHIP, MATERIAL, EQUIPMENT, SYSTEMS, ETC., PROVIDED BY HIM FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION OF THE PROJECT.
- C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE APPLICABLE STATE, NATIONAL AND LOCAL ORDINANCES, BUILDING CODES AND THE NATIONAL ELECTRIC CODE, AND THE TERMS AND THE CONDITIONS OF THE AUTHORITIES HAVING LAWFUL JURISDICTION PERTAINING TO THE WORK REQUIRED. ALL MODIFICATIONS REQUIRED BY THESE CODES, RULES, REGULATIONS, AND AUTHORITIES SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGE TO THE OWNER.
- D. ALL MATERIALS, APPLIANCES, EQUIPMENT, OR DEVICES SHALL BE NEW AND SHALL BE SPECIFICATION GRADE AND LISTED, LABELED AND CERTIFIED BY UNDERWRITER'S LABORATORIES INC. FOR THE USE, ALL OUTDOOR ELECTRICAL ENCLOSURES SHALL BE WEATHERPROOF AND BE NEMA 250, TYPE 3F RATED, OR BETTER.

SECTION 16075 - ELECTRICAL IDENTIFICATION

- A. PROVIDE AND INSTALL WARNING, CAUTION AND INSTRUCTION SIGNS WHERE REQUIRED TO COMPLY WITH N.E.C. AND OSHA REGULATIONS AND WHERE NEEDED TO ENSURE SAFE OPERATION AND MAINTENANCE OF ELECTRICAL SYSTEMS AND OF ITEMS TO WHICH THEY CONNECT. ALL LABELS SHALL BE SUITABLE FOR EXTERIOR LIFE WHEN INSTALL BY OUTTOORS
- B. ALL ELECTRICAL EQUIPMENT SHALL BE MARKED AND LABELED FOR IDENTIFICATION PURPOSES WITH PHENOLIC NAMEPLATES SIZED IN RELATION TO THE APPARATUS AND ATTACHED ON THE EXTERIOR SURFACES OF ALL ELECTRICAL EQUIPMENT TO INDICATING THE EQUIPMENT DESIGNATION, OPERATING VOLTAGE AND THE SOURCE SUPPLYING THE EQUIPMENT. ENGRAVED LABEL SHALL BE PROVIDED ON CLEARWIRE METER SOCKET ENCLOSURE.
- C. ALL CABLES OR CONDUCTORS SHALL BE IDENTIFIED WITH CIRCUIT IDENTIFICATION MARKERS IN EACH PULL BOX. J-BOXES, EQUIPMENT BOXES AND CABINETS WITH APPROVED PLASTIC TAGS OR APPROVED EQUIAL.
- D. ALL DIRECT BURIED CONDUITS SHALL BE PROVIDED WITH 6" WIDE 5 MIL THICK ALUMINIZED PLASTIC WARNING TAPE IDENTIFYING CONTENTS. TAPE COLORS SHALL BE ORANGE FOR TELEPHONE AND RED FOR ELECTRIC.
- E. ALL LABELS AND PANEL DIRECTORIES SHALL BE TYPEWRITTEN, NOT HAND WRITTEN.
- F. INSTALL LABEL ON EACH ACCESSIBLE SIDE OF ENERGIZED EQUIPMENT TO READ:

SECTION 16110 - RACEWAYS, BOXES AND FITTINGS

- A. INSTALL ALL CONDUIT AS REQUIRED FOR THIS CONTRACT PER NEC BY TYPE AND USE, UNLESS NOTED OTHERWISE WITHIN THIS SPECIFICATION.
- B. EXERCISE PARTICULAR CARE IN ROUTING AND GROUPING EXPOSED CONDUIT TO PRESENT NEAT AND WORKMANLIKE APPEARANCE WITH ALL LINES RUNNING PARALLEL WITH OR PERPENDICULAR TO SITE LINES AND EQUIPMENT.
- C. CUT ALL CONDUITS WITH AN APPROVED CUTTING MACHINE AND REAM AFTER THREADING TO REMOVE ALL BURRS.
- D. WHERE SIZE IS NOT SPECIFIED ON DRAWINGS, THE CONTRACTOR SHALL SIZE CONDUIT, JUNCTION BOX AND/OR PULL BOXES PER N.E.C BASED ON WIRING REQUIREMENT. THE CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN ON THE DRAWINGS OR NOT SHOWN, AND AS REQUIRED N.E.C TO LIMITED BENDS IN CONDUITS TO AN EQUIVALENT OF (4) 90-DEGREE
- E. INSTALL FACTORY ELBOWS ON 2" AND ABOVE CONDUIT. FIELD BENDS AND OFFSETS SHALL BE MADE WITH AN APPROVED BENDING MACHINE. USE CONDUIT BODIES ASSEMBLY TO FACILITATE PULLING OF CONDUCTORS OR TO MAKE CHANGES IN CONDUIT DIRECTION TO AVOID CONFLICT IN CONFINED SPACE.

- F. BURIED ELECTRICAL DUCTS SHALL USE SCHEDULE 40 OR 80 RIGID PVC PLASTIC CONDUIT WITH WATERTIGHT JOINTS. ALL UNDERGROUND/BURIED 90DEG ELLS SHALL BE RIGID TYPE FITTINGS. USE RIGID GALVANIZED CONDUIT ELBOWS TO TRANSITION FROM PVC TO RIGID GALVANIZED STEEL CONDUIT INSTALLED FROM 18" BELOW GRADE AND ABOVE GRADE. ALL PVC CONDUITS BURIED LESS THAN 18" BELOW GRADE SHALL BE
- G. EXPOSED OUTDOOR LOCATIONS SHALL USE RIGID GALVANIZED STEEL (RGS) CONDUIT, U.O.N, WITH THREADED OR RAIN TIGHT FITTINGS. EXPOSED THREADS SHALL BE PROTECTED WITH ZINC-RICH PAINT, USE SUN RESISTANT LIQUID TIGHT FLEXIBLE METALLIC CONDUIT AND WATERTIGHT CONNECTIONS WHERE REQUIRED TO MAKE FINAL CONNECTIONS TO EQUIPMENT AND IT IS NOT EXPOSED TO PHYSICAL DAMAGE, EXTREME HEAT OR COLD. ENSURE CONTINUITY OF THE BONDING AND GROUNDING SYSTEM WHEN CONDUITS TRANSITIONING TO NON METALLIC CONDUITS OR WHEN EXPANSION TYPE FITTINGS ARE USED.
- DRY INTERIOR LOCATIONS SHALL BE ELECTRICAL METALLIC TUBING (EMT) WITH STEEL COMPRESSION TYPE FITTINGS. THE USE OF SET SCREEN FITTING IS NOT PERMITTED - NO EXCEPTION
- PROVIDE INSULATED BUSHINGS TO PREVENT ABRASION OF WIRES AND DOUBLE LOCKNUTS ON CONDUITS ENTERING OR LEAVING JUNCTION BOXES. PULL BOXES. ELECTRICAL DEVICES AND EQUIPMENT CABINETS. EQUIP ALL RGS CONDUIT WITH GROUND BUSHINGS AND GROUND IT TO THE COMMON GROUNDING ELECTRODE SYSTEM.
- AVOID CONDENSATION POCKETS IN INSTALLATIONS, KEEP CONDUIT, FITTINGS AND BOXES FREE FROM FOREIGN MATTER BEFORE, DURING AND AFTER INSTALLATION.
- ALL CONDUITS, INCLUDING THOSE WITH NEW CABLES INSTALLED, SHALL HAVE A NYLON PULL ROPE INSTALLED TO FACILITATE FUTURE PULL.
- L. THE MINIMUM SIZE OF CONDUIT SHALL BE 3/4".

SECTION 16120 - CONDUCTORS

- A. ALL POWER WIRE SHALL BE TYPE THHN/THWN INSULATED SINGLE COPPER CONDUCTOR, RATED AT 600 VOLTS 90°C TO COMPLY UL WITH NEMA WC 70. MINIMUM WIRE SIZE FOR CURRENTS UP TO 20 AMPERE SHALL BE #12 AWG. USE SOLID COPPER UP TO SIZE #10 AWG AND SMALLER; STRANDED COPPER FOR #8 AWG AND LARGER. USE OF ALUMINUM CONDUCTORS WILL NOT BE PERMITTED.
- B. USE MANUFACTURER-APPROVED PULLING COMPOUND OR LUBRICANT WHERE NECESSARY; COMPOUND USED MUST NOT DETERIORATE CONDUCTOR OR INSULATION. DO NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM PULLING TENSIONS AND SIDEWALL PRESSURE VALUES.
- C. USE PULLING MEANS: INCLUDING FISH TAPE, CABLE, ROPE, AND BASKET-WEAVE WIRE/CABLE GRIPS THAT WILL NOT DAMAGE CABLES OR RACEWAY.
- WITHOUT SPLICES AS MUCH AS POSSIBLE, SPLICES, JOINTS AND CONNECTIONS IN CABLE SHALL BE MADE ONLY IN PULL BOXES, JUNCTION BOXES OR MANHOLES. CABLE SHALL BE LOOPED IN ALL JUNCTION BOXES AND PULL BOXES, AND RACKED IN
- E. TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE—TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED. USE THOSE SPECIFIED IN UL 486A AND UL
- F CONNECTORS AND LUGS FOR COPPER CONDUCTORS # 8 AND SMALLER: 3M SCOTCHLOK SERIES 61 SNAP SPADE, OR ACCEPTABLE EQUAL OR T & B STA-KON
 COMPRESSION OR IDENT TYPE CONNECTORS INTEGRAL OR SEPARATE INSULATING CAPS. FOR COPPER CONDUCTORS LARGER THAN WITH NO.8 SOLDERLESS, INDENT, HEX SCREW OR BOLT TYPE PRESSURE CONNECTORS, PROPERLY TAPED OR INSULATED
- G. PROVIDE ADEQUATE LENGTH OF CONDUCTORS WITHIN ELECTRICAL ENCLOSURES AND TRAIN THE CONDUCTORS TO TERMINATION POINTS WITH NO EXCESS. MAKE
- H. COLOR CODE, PHASE, NEUTRAL, AND GROUND CONDUCTORS COLOR—CODED IN ACCORDANCE WITH NEC. IDENTIFY ALL CONDUCTORS OF THE SAME PHASE CONDUCTOR TO THE SAME COLOR CODE. SUGGESTED COLOR CODING FOR 120/208V, SHOULD BE BLACK, RED, BLUE, WHITE, AND 277/480V, SHOULD BE BROWN, ORANGE, YELLOW,
- FACH CONDUIT OR RACEWAY THAT HAS A PHASE CONDUCTOR SHALL ALSO CONTAIN A GREEN INSULATED GROUNDING CONDUCTOR SIZED PER N.E.C, UNLESS OTHERWISE INDICATED.
- J. AFTER THE ELECTRICAL EQUIPMENT AND THE WIRING IS INSTALLED, BUT BEFORE ELECTRICAL CONNECTIONS TO EQUIPMENT, TEST PHASE—TO—PHASE AND PHASE-TO-GROUND INSULATION ON SERVICE ENTRANCE AND FEEDERS TO ASSURE THAT THEY HAVE THE PROPER INSULATION AND ARE FREE OF GROUND FAULT.

 SYSTEMS RATED ABOVE 250 VOLTS SHALL BE TESTED WITH A 1000 VOLT MEGGER.

 CIRCUITS RATED AT OR BELOW 250 VOLTS SHALL BE TESTED WITH A 500 VOLT
- K. CORRECT MALFUNCTIONING CONDUCTORS AND CABLES, WHERE POSSIBLE, AND RETEST TO DEMONSTRATE COMPLIANCE: OTHERWISE, REMOVE AND REPLACE WITH NEW UNITS AND RETEST AS SPECIFIED. PER NEC770.3(A), THE REQUIREMENTS OF 300.21 FOR ELECTRICAL INSTALLATIONS SHALL ALSO APPLY TO INSTALLATIONS OF OPTICAL FIBER CABLES AND RACEWAYS. THE ACCESSIBLE PORTION OF ABANDONED OPTICAL FIBER CABLES SHALL BE REMOVED.

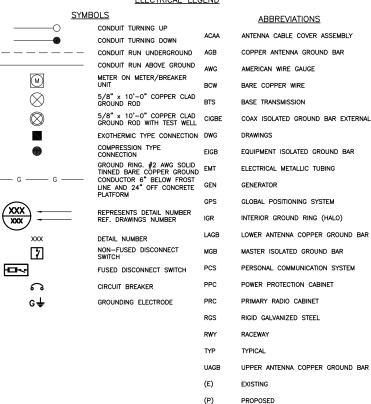
SECTION 16410 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

- A. MOLDED-CASE CIRCUIT BREAKER TO COMPLY WITH NEMA AB 1. WITH INTERRUPTING CAPACITY TO MEET RATING TO MATCH EXISTING OR AS REQUIRED FOR AVAILABLE FAULT CURRENTS. DO NOT USE SERIES RATING FOR NEW EQUIPMENT.

 IF EXISTING SERIES RATED EQUIPMENT IS SPECIFIED FOR USE IN THIS PROJECT, THEN PROVIDE 'CAUTION' MARKING ON THE EXISTING EQUIPMENT ENCLOSURE THAT ARE SERIES RATED AS DESCRIBED IN NEC 110-22.
- B. PROVIDE MOLDED CASE, BOLT-ON, THERMAL MAGNETIC TRIP, SINGLE, TWO OR TREE POLE BRANCH CIRCUIT BREAKERS AS SHOWN ON DRAWINGS. MULTIPLE POLE BREAKERS SHALL BE SINGLE HANDLE, COMMON TRIP AND MADE BY EQUIPMENT
- C. PROVIDE ENCLOSURE TO COMPLY WITH NEMA AB 1 AND NEMA KS 1 TO MEET ENVIRONMENTAL CONDITIONS OF INSTALLED LOCATION, OUTDOOR LOCATIONS SHALL BE
- D. VERIFY EXISTENCE OF NEC 110.26 REQUIRED CLEAR WORKING SPACE AT THE FRONT OF ELECTRICAL EQUIPMENT PRIOR TO INSTALLATION

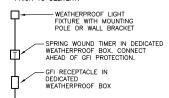
EXISTING BUILDING EXISTING FLECTRICAL ROOM 480V 3P 4W (<u>°</u>400A/3P - (E) PANEL RH-1 SEE NOTE#1 (P) CIRCUIT BREAKER IN (E) PANEL 50A/2P TO MATCH (E) BREAKER AIC AND MANUFACTURER. NOTE #2. (P) SUB METER. PROVIDE NAMEPLATE LABEL TO READ (2) #6 AWG & (1) #10 AWG GROUND IN 1" CONDUIT WHEN OPEN-POSITION LOCKABLE CIRCUIT BREAKER IS NOT IN SIGHT AND WITHIN 50FT OF TRANSFORMER). 60A/2P (2) #6 AWG & (1) #10 AWG GROUND IN 1 1/4" FMC -15KVA, 480V-240/120V 1-PH TX TP-1 TRANSFORMER NOTE #3 GROUND IN 1-1/2" FMC Gੈ 100AF ENCLOSED CIRCUIT BREAKER 80AT 2P -(3) #2 AWG & (1) #8 AWG 120/240V, 1-PHASE, EQUIPMENT CABINET W/ 100A INTEGRATED E-3 LOAD CENTER TELCO ELECT. CABINET CABINET 30A/2 ♥ M.I. -(2) #12 AWG & (1) WIMAX CABINET GENERATOR PLUG NOTE 5 SINGLE LINE DIAGRAM

ELECTRICAL LEGEND



NOTE:(APPLY TO RISER DIAGRAM)

- ELECTRICAL CONTRACTOR TO VERIFY ELECTRICAL CAPACITY AND CONDITION OF THE EXISTING ELECTRICAL SYSTEM (NEC 220.87) TO SAFELY ADD THE REQUIRED POWER FOR THE PROPOSED WORK AND CONFIRM AVAILABLE SPACE IN (E) ELECTRICAL PANEL FOR THE (P) CIRCUIT BREAKER.
- CONTRACTOR SHALL PROVIDE ELECTRICAL EQUIPMENT WITH FAULT CURRENT RATING GREATER THAN THE AVAILABLE FAULT CURRENT AT THE POINT OF CONNECTION.
- 3. ELECTRICAL CONTRACTOR TO VERIFY AND CONFIRM AVAILABLE SPACE IN ELECTRICAL ROOM FOR THE PROPOSED WORK.
- CONTRACTOR SHALL FIELD VERIFY THE ACTUAL VOLTAGE. PROVIDE THE ACTUAL VOLTAGE TAG ON THE PANEL AND ORDER THE CLEAREWIRE EQUIPMENT WITH CORRECT VOLTAGE SETTING.
- 5. IN CASE OF STAND BY POWER, PROVIDE A LABEL AND PLACE ON THE GENERATOR PLUG. THE LABEL SHALL READ, AS APPROPRIATE. HIS CONNECTION IS FOR GENERATORS RATED 120/240-VOLT 3-WIRE AC, 60 HZ, 30 AMPERES MAXIMUM. PROVIDE ANOTHER NOTE "BREAKER SHALL BE OPEN BEFORE COMPLETE AND THE AND PERFECT BETWEEN AND PERFECT PLANT. INSERTION AND BEFORE REMOVAL OF SOCKET." AND INSTALL NEXT TO THE PLUG.
- 6. PROPOSED TELCO AND ELECTRIC CABINETS ARE MOUNTED TO WIMAX OUTDOOR EQUIPMENT CABINET PRIOR TO DELIVERY.



CLEARWIRE "DAP" POWER PANEL PART OF EQUIPMENT CABINET								
120/	120/ 240 V, 1-Ø, 3W. 100A BUS, 10kAIC							
	DUAL 100A MAIN BREAKERS, 10kAIC SERIES RATED UL LISTED SERVICE RATED ENTRANCE EQUIPMENT.							
NORMA	NORMAL POWER MCB= 100 A/2P							
GEN	. POWER	MCB=	30	A/2P				
	CKT BRE	AKER	LO	AD TY	PE		LOAD	(VA)
CKT NO.	AMPS	POLES	CONT	REC	MISC	DESCRIPTION	Α	В
1R	20	2	х			A/C UNIT	696	
1L	20	2	Х			120/240V TWIST LOCK	1920	
2L	=	2	х			120/240V TWIST LOCK		1920
2R	=	2	х			A/C UNIT		696
3	20	1	х			CABINET QUAD.	420	
4	20	1	х			(P) LIGHT & GFI RECEPT.		400
					PH	ASE TOTAL (VA)	2836	2816
	PHASE BALANCE 50% 50%							50%
	TOTAL CONNECTED LOAD 5652 VA							VA
	TOTAL CONNECTED LOAD IS CONSIDERED AS CONTINUOUS LOADS . 25% OF CONNECTED LOAD= 1413 VA							
						DEMAND LOAD	7065	VA
			TC	TAL D	EMAND	LOAD CURRENT	29.5	Α

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1. PROVIDING RADIO FREQUENCY HAZARD WARNING SIGNS, AWARENESS OF THE POTENTIAL FOR RF EXPOSURE IN A WORKPLACE OR SIMILAR ENWRONMENT, SPECIFIC TRAINING AS PART OF AN RF SAFETY PROGRAM, OTHER FCC REQUIRED MEASURES REGARDING THE EFFECT OF RADIO FREQUENCY ON THE HUMAN ENWRONMENT WITH REGARD TO EXPOSURE OF THE GENERAL PUBLIC, LIGHTNING PROTECTION, AND FAA REQUIRED OBSTRUCTION LIGHTNING PROTECTION, AND FAA REQUIRED OBSTRUCTION LIGHTNING ARE NOT PART OF THE EBI CONSULTING ARE NOT PART OF THE EDI

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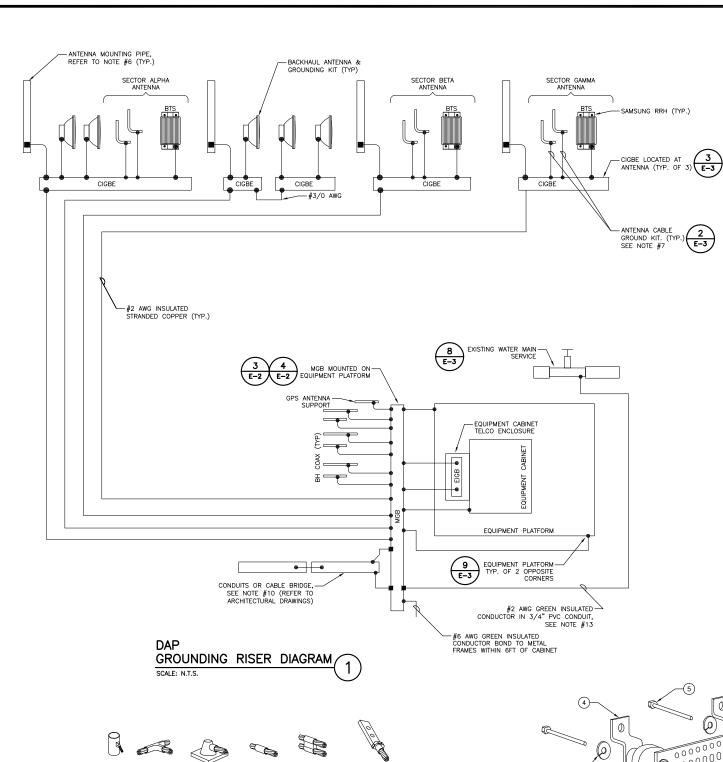
DRAWN BY:

ELECTRICAL RISER DIAGRAM, NOTES & **DETAILS**

JK CHECKED BY: AS

E-1 02/05/10

SHEET NO:



GROUNDING NOTES

- 1. SEE DRAWING E-1 FOR LEGEND AND ABBREVIATIONS
- 2. ALL GROUND WIRES SHALL BE BARE #2 AWG BCW UNLESS NOTED OTHERWISE
- 3. ALL GROUND WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
- 4. ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION OF GROUND RODS AND GROUND RING
- EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 AMG INSULATED STRANDED COPPER WIRE. EQUIPMENT CABINETS SHALL HAVE (2) CONNECTIONS.
- 6. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED
- 7. ANTENNA GROUND KITS SHALL BE FURNISHED BY CLEARWIRE AND INSTALLED BY ELECTRICAL CONTRACTOR. INSTALL RF CABLE GROUND KITS AND LIGHTNING ARRESTORS ON "GIGB", "MGB" OR THE GROUND BAR IN TELCO BOX AS REQUIRED BY CLEARWIRE FOR RF, COAX, AND FIBER CABLES AND DC POWER CABLE SHIELD. REFER TO SCOPE OF WORK ON SHEET T-1 FOR QUANTITY OF CABLES. ALL CONNECTORS SHALL BE PROVIDED BY CONTRACTOR.
- REFER TO DRAWING E-3 FOR FURTHER GROUND SYSTEM WITH EXISTING SITE GROUND SYSTEM.
- COORDINATE NEW CLEARWIRE GROUND SYSTEM WITH EXISTING SITE GROUND SYSTEM.
- EACH SECTION OF CABLE TRAY, ICE BRIDGE AND SUPPORT POSTS SHALL BE GROUNDED AT BOTH ENDS.
- 12. PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CLEARWIRE'S EQUIPMENT.
- 13. PROVIDE GROUND CONNECTION TO INTERIOR METAL WATER PIPING SYSTEM WITHIN 5-FEET FROM IT'S POINT OF ENTRANCE TO THE BUILDING. WHERE IT DOESN'T EXIST PROVIDE GROUND CONNECTION TO AN EFFECTIVELY BONDED GROUNDING ELECTRODE AT SERVICE LOCATION.
- 14. GROUND RING SHALL BE CONSTRUCTED WITH ONE CONTINUOUS #2 OR LARGER BCW WITHOUT ANY BREAKS OR JOINTS OTHER THAN ONE AT THE END OF THE GROUND RING TO COMPLETE THE LOOP WITH EXOTHERMICALLY WELD MOLD.

EXOTHERMIC

ELECTRICAL SPECIFICATIONS

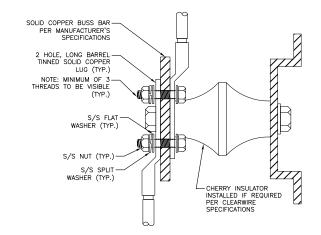
- ALL ELECTRICAL AND GROUNDING AT THE CELL SITE SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC). NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780 (LATEST EDITION), AND MANUFACTURER'S REQUIREMENTS.
- THE AC PANEL IN THE POWER CABINET IS WIRED AS A SERVICE ENTRANCE, IF IT IS USED AS SERVICE PANEL THE NEC-250.66 REQUIRED GROUNDING ELECTRODE CONDUCTOR SHALL BE INSTALLED IN THE AC POWER CONDUIT. THE INSTALLATION SHALL BE PER LOCAL AND NATIONAL ELECTRIC CODE (NFPA-70). IN THE CASE THAT MAIN SERVICE DISCONNECT IS SUPPLIED AT THE MAIN METER LOCATION, THE BOND BETWEEN NEUTRAL AND EQUIPMENT GROUNDING CONDUCTOR IN THE AC PANEL SHALL BE REMOVED BY CONTRACTOR.
- EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL OTHERWISE.

 THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES, LONG BARREL LUGS OR
 DOUBLE CRIMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH AN ANTI-OXIDANT (THOMAS BETTS KOPR-SHIFLD) BEFORE MAKING THE CRIMP CONNECTIONS THE CONTRACTOR SHALL
- THE ANTENNA CABLES SHALL BE GROUNDED AT THE TOP AND BOTTOM OF THE VERTICAL RUN FOR LIGHTNING PROTECTION. THE ANTENNA CABLE SHIELD SHALL BE BONDED TO A COPPER GROUND BUS AT THE LOWERMOST POINT OF A VERTICAL RUN JUST BEFORE IT BEGINS TO BEND TOWARD THE HORIZONTAL PLANE. WIRE RUNS TO GROUND SHALL BE KEPT AS STRAIGHT AND SHORT AS POSSIBLE. ANY ANTENNA CABLES OVER 200 FEET IN LENGTH SHALL ALSO BE EQUIPPED WITH ADDITIONAL GROUNDING AT MID-POINT.
- THE MASTER GROUND BAR (MGB) SHALL BE MADE OF BARE 1/4"x2" COPPER (FOR OUTDOOR APPLICATIONS IT SHALL BE TINNED COPPER) AND LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MGB SHALL ELECTRICALLY INSULATE THE MGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
- GROUND CONNECTIONS: CLEAN SURFACES THOROUGHLY BEFORE APPLYING GROUND LUGS OR CLAMPS, IF SURFACE IS COATED, REMOVE THE COATING, APPLY A NON-CORROSIVE APPROVED COMPOUND TO CLEAN SURFACE AND INSTALL LUGS OR CLAMPS. WHERE GALVANIZING IS REMOVED FROM METAL, IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVAMOX", OR EQUAL.

PROTECTIVE GROUNDING SYSTEM GENERAL NOTES

- AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANELS, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING. CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONIQUE COMPRESSION TYPE LUGS WITH STIANLESS STEEL SELF—TAPPING SCREWS.
- ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
- ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH CLEARWIRE PROJECT MANAGER.
- ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
- INSTALL GROUND BUSHINGS ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUS IN THE PANEL BOARD.
- GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2
 INSULATED TINNED STRANDED COPPER GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.

GROUND COAXIAL SHIELD AT BOTH ENDS USING MANUFACTURER'S GUIDELINES.



- 1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING SPLIT WASHERS.
- COAT WIRE END WITH ANTI-OXIDATION COMPOUND PRIOR TO INSERTION LUG BARREL AND CRIMPING.
- APPLY ANTI—OXIDATION COMPOUND BETWEEN ALL LUGS AND BUSS BARS PRIOR TO MATING AND BOLTING.

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SUBMITTALS				
NO.	DATE	DESCRIPTION	BY	
Α	02/05/10	FOR REVIEW	JK	
В	02/17/10	REVISED PER COMMENTS	KK	
0	02/19/10	FOR CONSTRUCTION	KK	
-	04/01/10	REVISED SITE PLAN INFORMATION	KK	
2	05/03/10	CONSTRUCTION FINAL	KK	
3	05/14/10	REVISED PER DEPARTMENT OF PLANNING COMMENTS	KK	

81090526

VA-WSH046-e LEISURE WORLD

9355 CYPRESS RIDGE TER LANSDOWNE, VA 20176

SHEET TITLE:

02/05/10

GROUNDING RISER DIAGRAM & NOTES

DRAWN BY CHECKED BY E-2 AS

GROUND LUG DETAIL

EXOTHERMIC WELD DETAILS

TYPE SS

TYPE 2-YA-2

EXOTHERMIC WELD "MOLD TYPES" SHOW HERE ARE EXAMPLES. CONSULT WITH PROJECT ENGINEER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.

TYPE PT

TYPE VS

TYPE YA-2

TYPE XA

TYPE VS

TYPE HS

TYPE TA

TYPE GT

TYPE HS

GROUND BAR DETAIL

NOTES:

LEGEND

ZINC COATED COPPER HARGER GROUND BAR, 1/4"X 2"X 10", HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION

STANDOFF INSULATORS, HARGER LIGHTNING PROTECTION, INC. CAT. NO. 5263-A8

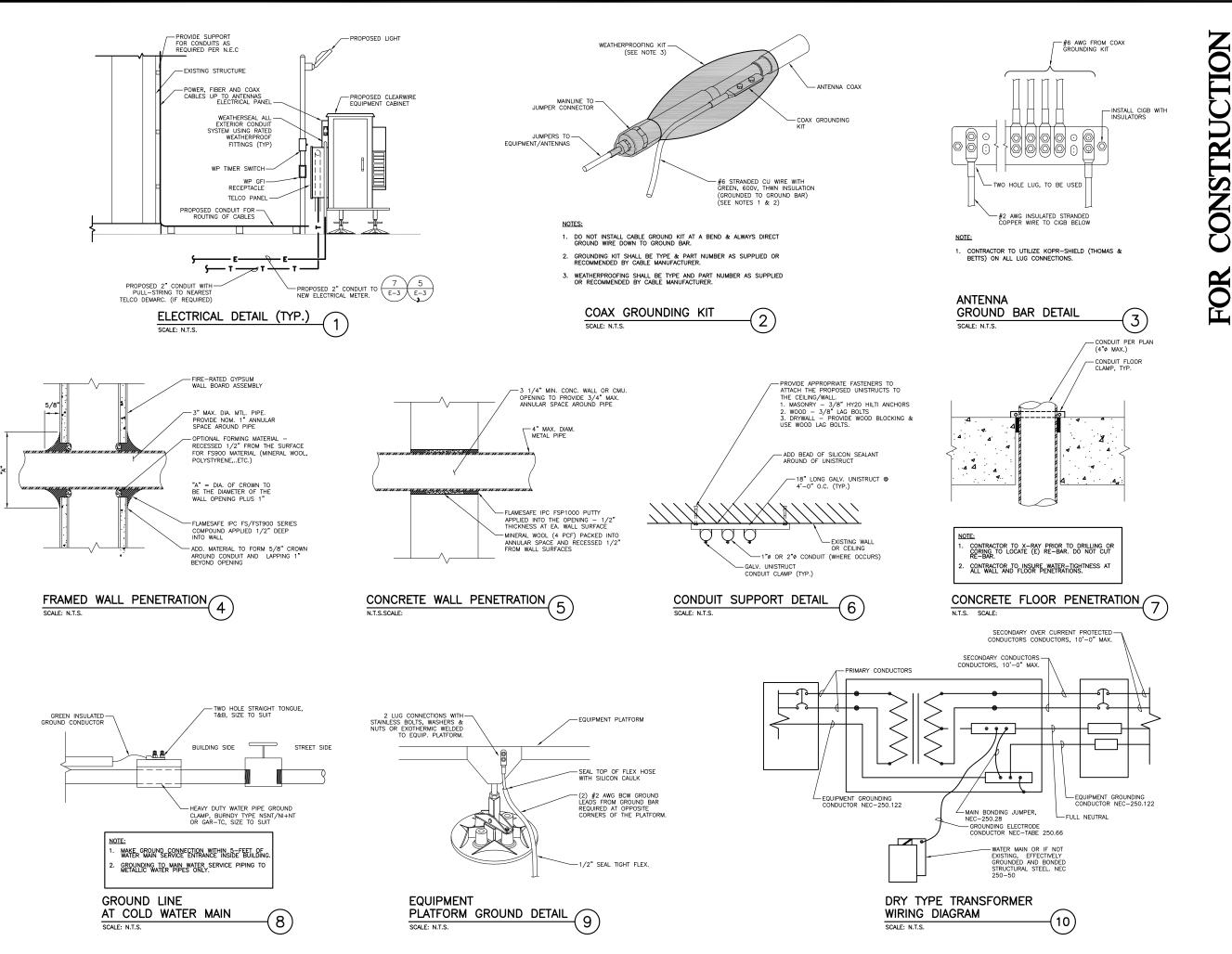
4. WALL MOUNTING STAINLESS STEEL MOUNTING BRACKET, HARGER CAT NO. WBKT-1

5. 1/2-13 X 1" HEX HEAD CAP SCREW, HARGER, CAT NO. CS88S

ALL HOLES ARE 7/16" UNLESS SPECIFIED DIFFERENTLY.

3. 1/2" LOCKWASHERS, HARGER CO. CAT. NO. LW8S

(3)



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0	02/19/10	FOR CONSTRUCTION	KI		
1	04/01/10	REVISED SITE PLAN INFORMATION	K		
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3	05/14/10	REVISED PER DEPARTMENT OF PLANNING COMMENTS	KI		

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19355 CYPRESS RIDGE TER LANSDOWNE, VA 20176

SHEET TITLE:

DATE: 02/05/10

ELECTRICAL AND GROUNDING DETAILS

DRAWN BY: JK	SHEET NO:
CHECKED BY: AS	E-
DATE	

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